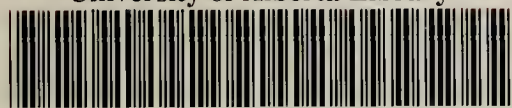


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# BLUE JAY

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**Covers:** Front: Evening Star, *Mentzelia decapetala*. Photo by Jim Romo.  
Back: Monarch on Rudbeckia flower. Photo by Craig Salisbury.

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# Blue Jay

Vol. 58 No. 2

June 2000

63-114

Editor's Message ..... ii

## Birds

OBSERVATIONS OF YELLOW RAILS IN SOUTHERN SASKATCHEWAN -  
1998 AND 1999. *Bob Luterbach* ..... 63

SOME BIRD OBSERVATIONS IN MANITOBA IN 1999. *Bill Koonz* ..... 65

THE NATURE OF BARRED OWL DAYTIME ROOST SITES IN SASKATCHEWAN.  
*Kurt M. Mazur, Shanna D. Frith and Paul C. James* ..... 69

THE GREAT GRAY OWL IN MANITOBA, WINTER 1995-96 AND 1996-97.  
*Robert W. Nero* ..... 72

OBSERVATIONS ON NESTING RED-WINGED AND YELLOW-HEADED BLACKBIRDS  
AT MYERS WETLANDS, BRITISH COLUMBIA. *Tessa N. Campbell* ..... 77

GREAT BLUE HERON COLONIES IN SASKATCHEWAN IN 1999, A PRELIMINARY  
INVENTORY. *Lenita Hanson and A. R. Smith* ..... 81

## Plants

NOSTOC, A LITTLE-KNOWN IMPORTANT ALGA IN THE SASKATCHEWAN PRAIRIES.  
*Bernard de Vries and M.V.S. Raju* ..... 86

NEW VASCULAR PLANT FINDS AT THE RENDEK ELM FOREST.  
*Diana Bizecki Robson and Vern Harms* ..... 89

FOUR INTRODUCED SPECIES NEW TO SASKATCHEWAN FROM THE 1990s.  
*John H. Hudson* ..... 91

## Insects

A MONARCH DIARY. *Lorriene and Craig Salisbury* ..... 95

## Notes and Letters

SURPRISES ALONG THE OTHER MEWASIN TRAIL. *Judith Benson* ..... 99

TWO UNUSUAL LOGGERHEAD SHRIKE NESTS. *Greg Wagner* ..... 100

TO SAVE A MOCKINGBIRD. *Leona M. Pollock* ..... 101

CALIFORNIA CONDOR AT KERROBERT, SK *Judy Simonson* ..... 103

BUZZING BALL BAFFLES BOTANIST. *Anna Leighton* ..... 104

BARN OWL AT GRASSLANDS NATIONAL PARK. *John Weier* ..... 106

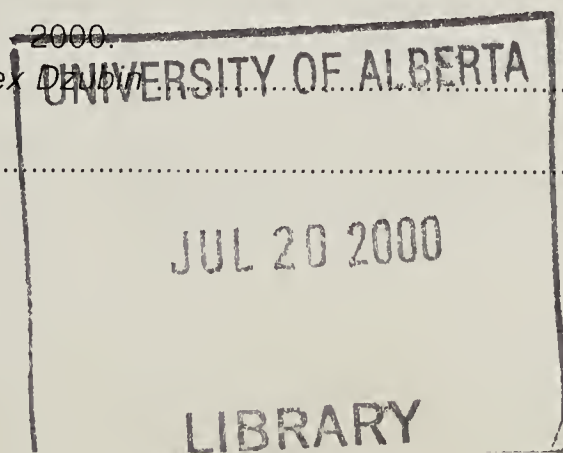
## Nature Library

ATLAS OF SASKATCHEWAN. *Ka-iu Fung, Editor* ..... 107

## In Memoriam

J. BERNARD "BERNIE" GOLLOP, 1926 - 2000.  
*C. Stuart Houston, J. Frank Roy and Alex Dublin* ..... 109

Mystery Photo ..... 113





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# EDITORS' MESSAGE

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With Bernie Gollop's death, *Blue Jay* lost a good friend and devoted supporter. He kept an eye on the magazine to prevent it from becoming too formal and scientific in style, too focussed on birds and above all, to keep it readable and accessible to everyone interested in nature.

Because Bernie's vision has long been important in making *Blue Jay* what it is, we provide selections from an unpublished editorial he wrote in 1996 that show the direction he hoped the magazine would go. These final words from our strongest supporter of the "naturalist-on-the-street" should be borne in mind by readers, contributors and editors, present and future.

The Editors

## **Whither *Blue Jay*? (from Editorial by J.B. Gollop)**

There has been considerable criticism from members for too many years that *Blue Jay* has become too scientific...that there are too few popular articles – those that a person without technical training can read, enjoy and even smile at. ...While the world has become more complicated and maybe more sophisticated in the 5 decades since Isabel Priestly started this magazine, we would like to move closer to her ideals – with less complicated articles and greater participation by members. However, to do that requires a lot of help from potential authors – naturalists both amateur and professional.

We are going to worry less about the stature of *Blue Jay* in the eyes of the scientific community and more about how the naturalist-on-the-street feels about it. We hope to interest more nature-lovers and, thereby, increase our membership several-fold. The hackneyed expression that there is strength in numbers is particularly true where politicians are concerned and politicians are the people who make the decisions about our environment. (A larger membership would also allow us to graduate to more colour.)

This grandiose scheme means that more readers of *Blue Jay* will have to become writers. Please send us letters, notes and articles on observations and experiences that you thought were interesting at the time. Don't be afraid to share them with other people; many will be glad to read them. There is no great mystery about writing a note for publication. The biggest problem is inertia – putting it off (and then forgetting about it). Just put on paper what you saw the way you saw it. And it need not even be typewritten, let alone be put on a computer disk. Do it (as they say)!

Another criticism is that too many *Blue Jay* articles have dealt with birds. Guilty! But the fact appears to be that more people are interested in birds than in flowers or butterflies or maggots. Look at the number of books, magazines, videos, TV programs and commercial safaris devoted solely or primarily to birds as compared to other groups. That being said, critics should realize and remember that editors can't publish what they haven't got. Non-birding articles are neither discouraged nor rejected. Our editors have always wished they had a better balance. But, if the "minority" groups wish to further their cause, to educate the barbarians, they will have to write more articles than birders do or, at least, than they have been writing. We hope they do.

Those are our noble hopes. How far they go depends on the people reading this editorial. An editor can only publish what s/he receives.



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# BIRDS

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## OBSERVATIONS OF YELLOW RAILS IN SOUTHERN SASKATCHEWAN - 1998 AND 1999

BOB LUTERBACH, #217 - 10 Michener Drive, Regina, SK S4V 1R2

Yellow Rails are rare, secretive birds that breed within dense, mature sedge meadows with stable levels of shallow water. Abundant seasonal precipitation and exceptional local flooding in 1999 combined to create excellent breeding habitat for this species.

Yellow Rail vocalizations consist of distinctive, rhythmical clicking sounds. It is often possible to elicit a vocal response by tapping two small stones together to mimic these sounds. Yellow Rails may be heard calling at any time of the day; however the best time is after dusk. They usually continue to vocalize throughout the night unless it is very cool, raining or extremely windy. This elusive species is very difficult to observe without disturbing or harassing the birds; they are best identified by listening for their unique calls.

### **Northwest Qu'Appelle Valley - 1999 and 1998**

Each spring, a significant portion of the Qu'Appelle Valley along Highway 99 is flooded. This is a result of the combined effects of high volumes of spring runoff, that overwhelm the Qu'Appelle River channel, and the creation of several temporary man-made dams. These dams ensure extensive flooding, which enhances the development of lush pasture lands, hay flats and marshy areas. Typically, this is a brief event; dams are removed, flows subside and the water either quickly

evaporates or drains back within the channel. In 1999, exceptional volumes of melt water plus above average seasonal precipitation combined to cause more extensive and prolonged flooding, which continued throughout the summer and early fall.

On June 20, 1999, I undertook my second annual Yellow Rail census northeast of Craven along Highway 99 within the Qu'Appelle Valley. This road extends 21 kilometres southwestward from its junction with Highway 6 to its junction with Highway 322 at Craven. I conducted the survey between midnight and 3:00AM to minimize the potential interference of vehicular traffic. I began the census at the most eastern point, near the junction of Highway 6, and continued southwestward, stopping every quarter kilometre to listen for the birds. I was surprised to find more than 30 Yellow Rails scattered at the roadside along the northern edge of the Qu'Appelle River flood plain. These spontaneously calling birds were located mainly along the eastern half of this route, beginning near Highway 6, and ending approximately at the midpoint of the highway near the property called The Spruce Farm. It was difficult to determine accurately just how many rails were present from this point westward because of the proximity of houses, barking dogs and the greater distance of potential habitat from the road.



Large numbers of Le Conte's Sparrows and Sedge Wrens were also heard during the survey along the eastern half of this route. These two species often are found in association with Yellow Rails. In addition, Sharp-tailed Sparrows, Marsh Wrens and Sora Rails were located in adjacent habitats of deeper water where Reed Grass (*Phragmites australis*) or Cattails (*Typha* sp.) grow. There seemed to be little overlap between these species and the Yellow Rail, Le Conte's Sparrow and Sedge Wren territories.

On June 13, 1998, when I surveyed the same route, I heard only a few small concentrations and not more than 10 Yellow Rails in total. The majority of these birds were located within a roadside oxbow at the extreme northeastern part of this route, near the junction with Highway 6. Several other Yellow Rails were calling a few kilometres farther west in two small, boggy, spring-fed meadows. In 1998, the annual spring flood was less extensive than average, and persisted for only a brief interval. Summer rains were infrequent and light. Much of the area was dry throughout late spring and summer.

### **Qu'Appelle Valley - Southern Slope**

Every year, for at least 10 years to my knowledge, a small, stable population of Yellow Rails has been present along the southern edge of the valley floor adjoining the Old Catley Ranch.<sup>a</sup> Each summer, the Regina Natural History Society schedules several field trips to visit this area. The rails usually are concentrated just outside of the property fence, among the upper sedge meadows and fens created by the outflow of several permanent springs which trickle down through the property. The specific location of these Yellow Rail territories is dependant upon the amount of flow. Sometimes they are displaced

to the margins of this habitat by high water. Generally, the slope of these wet meadows provides enough drainage to maintain constant water levels. These elevated shallow basins also provide stable water conditions during intervals of reduced flows.

### **Wascana Creek at Tyvan - 1999 and 1998**

On June 27, 1999, six or so Yellow Rails were heard calling at night in a pasture along a channel of Wascana Creek in the Tyvan area. This pasture, which has many interconnected grassy depressions or swales, initially flooded because the abundant spring run-off could not be contained within the small creek channel. Significant areas of this pasture continued to be flooded throughout the summer. Above average rainfall continually recharged and maintained water levels. In contrast, during 1998 both spring melt water and summer precipitation were below average. There was only a residual amount of water within the main channel. No Yellow Rails were present.

In summary, 1999 probably was a banner year for Yellow Rails in southern Saskatchewan due to the combination of exceptional spring flooding and abundant seasonal precipitation. This is in stark contrast to the drier conditions of 1998 when there were fewer Yellow Rails within the Qu'Appelle Valley area and none at Tyvan. This dynamic species appears capable of the opportunistic movements to take advantage of changing local conditions. This is a predictable strategy for a species which has such specialized habitat requirements. A small, more stable population of Yellow Rails may be found annually within the permanent spring-fed meadows adjoining the Old Catley Ranch. Yellow Rails have been designated as endangered or threatened species within several



nearby northern States. Saskatchewan populations levels are at this point unknown.

<sup>a</sup> The Catley property is located along the south slope, directly across the

valley from the midpoint of Highway 99. Specific directions and instructions for seeking permission to enter this restricted area may be obtained by contacting Robert Kreba (787-2807) or Bob Luterbach (790-8364).



## SOME BIRD OBSERVATIONS IN MANITOBA IN 1999

BILL KOONZ, Wildlife Branch, Manitoba Conservation, Box 24, 200 Saulteaux Crescent, Winnipeg, MB R3J 3W3

### Long Point - June 1

On June first, Robert Jones (retired bird biologist) and I visited the Gull Bay Sand Spit on the south side of Long Point, Manitoba (52° 58' N, 98° 54' W). Long Point sticks out into the west side of Lake Winnipeg near its north end. The sand spit has been growing southwestward for over 30 years. It had attained a length of over 6 kilometres and was nearly a kilometre wide in places before being cut off at the base by lake currents in the spring of 1998. This spit had been home for a huge Caspian Tern colony in the 1970s when it also had been an island<sup>1</sup>. Its broad beaches have provided nesting sites for one of the two largest known Piping Plover breeding areas in Manitoba. It was established as the Walter Cook Special Conservation Area by Manitoba Order in Council in 1991. Walter Cook (now deceased), a lifelong Grand Rapids trapper, hunter, fisherman and naturalist, was the first Manitoban to recognize the area as important for nesting Piping Plovers. By the spring of 1999, the spit had already become a

breeding colony for over 2,000 Ring-billed Gull and 2,000 Common Tern pairs. Over 60 Herring Gull nests also were counted there in 1999. Most of the shorelines are eroding, reducing the habitat available for Piping Plovers, but 14 were recorded there on 1 June. Of special interest was the observation of an adult male Lark Bunting recorded on the spit. It was enough of a treat to see Common Grackles, Red-winged Blackbirds, Brown-headed Cowbirds and Brewer's Blackbirds in the same shrub, but having the Lark Bunting there as well made it even more exciting.

### Lake Winnipegosis - June 4-11

On June 4 to 11, I took part in a boat cruise to count the numbers of nesting colonial waterbirds on Lake Winnipegosis. Participants also included John Weier (author and bird watcher), Don Campbell (retired provincial government photographer) and Doug and Harvey Brown (the captain and his son). Some of the highlights included five Great Blue Heron nests on the ground, a Bald Eagle



nest in the same elm tree as four Double-crested Cormorant nests, and observations of Canada Goose flocks (15-82 individuals) totalling over 360 birds. Also of interest were large numbers of shorebirds including over 150 Sanderlings, 75 Ruddy Turnstones, 60 Semi-palmated Sandpipers and a dozen White-rumped Sandpipers. The most abundant nesting waterfowl was the Gadwall, however both Red-breasted and Common mergansers were abundant on the lake's many boulder-strewn islands. The biggest surprise was what appeared to be a second-year Common Loon seen by John Weier and Bill Koonz on June 7 near the south end of Sawbill Island, east of Birch Island (Latitude 52°15' N; Longitude 99° 50' W). We observed the bird for several minutes, attempting to declare it something else (Red-necked Grebe? Arctic Loon?), but decided that it was indeed a juvenile Common Loon, or at least a Common Loon in juvenile plumage.

The colonial waterbird colony information provided big numbers and food for thought (Table 1). On islands

where large Caspian Tern, Common Tern and Ring-billed Gull colonies overlapped, there was chaos when disturbance took place. Overlap areas were typically destroyed by our presence, so nest counts on those islands were estimates only. On islands occupied by a number of species including pelicans, cormorants, gulls and terns, the pelicans and cormorants often buffered the gull and tern nesting cells. Tern and gull colonies were separated by the early-nesting pelicans and cormorants. This separation appeared to greatly lessen the stress shown on islands where the gull and tern colonies overlapped.

It appeared that the large nesting colony sites were similar to atolls in the sense that the birds' excrement produces an aquatic bloom in the surrounding waters. These blooms provide food for the terns. Cormorants appear to be food finders, habitat makers and buffers for other species. They pioneer new colonies on treed islands. The vegetation dies over time, resulting in habitat for associated species.

**Table 1. Total numbers of nests counted during a survey of colonial waterbirds on Lake Winnipegosis, Manitoba, June 4-11, 1999.**

Species	Number of nests counted and estimated <sup>a</sup>
Double-crested Cormorant	36,497 nests on 35 islands
American White Pelican	7,769 nests on 9 islands
Ring-billed Gull	11,594 nests on 26 islands
Caspian Tern	5,868 nests on 8 islands
Common Tern	2,618 nests on 19 islands
Herring Gull	783 nests on 39 islands
California Gull	618 nests on 3 islands
Great Blue Heron	188 nests on 7 islands
Black-crowned Night-heron	22 nests on 3 islands
<sup>a</sup> See text for explanation of counts	



Nests were counted by observation using hand counters on most colonies; it was difficult to quickly differentiate Ring-billed Gull nests from Caspian Tern and California Gull nests where the colonies overlapped. Estimates of Common Tern nests are low because this species was just initiating nesting on many colonies. The number of nests on several American White Pelican and Caspian Tern colonies was estimated on the basis of the area covered by the colony because of the risks posed by human disturbance and heat to nests, and recently hatched young, had the colony been visited.

#### **West Shoal Lake - July 14**

West Shoal Lake in Manitoba's Interlake region was the field site of Sue Haig's doctoral research on the Piping Plover.<sup>2,3</sup> A recent increase in the area's water level has resulted in her entire study area being under water. The water of the lake is well over a metre above what it was in the mid-1980's. The result has been an elimination of Piping Plover

habitat on the lake. The peninsula that Sue Haig had worked on now is three islands, the most easterly of which contained a Ring-billed Gull colony of over 1000 pairs in 1999. When I visited the site on July 14, it also harbored over 50 loafing cormorants and 50 pelicans. Of particular interest was a large Western Grebe colony on the lake and at least four adult grebes with young on their backs. American Avocets, Willets, Marbled Godwits and Upland Sandpipers are some of the species identified as successfully nesting around the lake in 1999.

#### **Churchill - July 30 - Aug. 9**

I visited the Hudson Bay coast in the Churchill area, banding family groups of Canada Geese from July 30 to August 9. During that period, I visited areas from the North Knife River north of Churchill to York Factory south of Churchill. Goose nesting, of both Canada and Lesser Snow, was early and excellent in 1999 due, in part, to the early spring and a warm, dry summer. What struck



*American White Pelicans at a nesting colony*

**RLD**



me were the large numbers of Sandhill Cranes that were seen all along the coastal areas visited. Also of interest were more than 130 Bald Eagles seen there. The eagles appeared to be feeding on geese as one captured goose had its scalp feathers removed and two others had their necks gashed. There also were large numbers of Northern Harriers as well as several Short-eared Owls, but these species were not associated with the goose concentrations. A Northern Shrike was spotted at York Factory on August 4<sup>th</sup>. On August 4<sup>th</sup> and 5<sup>th</sup>, we noticed Bank Swallows living in birdhouses at the York Factory residence. There were an additional dozen occupied nests side by side along the roof of a shed. There also were Bank Swallows nesting along the banks of the Hayes River just downstream from York Factory. Shorebirds abounded throughout the period of visitation. Flocks of thousands were common along the exposed beaches, feeding in tidal areas and inland when the tide was high. There were more than 1500 Whimbrels on the rocks at Cape Mary for at least three consecutive days (Aug 1-4).

### **Bruxelles - November 10**

On November 10, while walking through open stands of mature oaks southeast of Bruxelles (south of Spruce Woods), I heard a parrot-like song. Upon closer investigation, I determined that the source was a Northern Shrike. I have seen a number of Northern Shrikes in the fall and winter, but I had never heard one giving his full song, which was repeated a dozen or so times over the half hour that I was listening. November 1999 was extremely warm and sunny, and this may have put the bird in a festive mood.

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*Ring-billed Gull colony, Last Mountain Lake, SK*  
**Gary Anweiler**



# THE NATURE OF BARRED OWL DAYTIME ROOST SITES IN SASKATCHEWAN

KURT M. MAZUR, Manitoba Conservation, Box 24, 200 Saulteaux Cres., Winnipeg, MB R3J 3W3, SHANNA D. FRITH, Box 273, Balmoral, MB R0C 0H0, and PAUL C. JAMES, Saskatchewan Environment and Resource Management, 3211 Albert St., Regina, SK S4S 5W6.

The Barred Owl has long been considered an owl of “deep, dark woods”, inhabiting heavily wooded areas including swamps and upland forests.<sup>2,6</sup> Numerous accounts of Barred Owls from the southern and eastern part of its range confirm this bird’s preference for concealing roost sites in densely foliated coniferous and deciduous trees.<sup>1,4,5,9</sup> The use of such sites would presumably provide protection from mobbing birds, as well as protection from cold. Barred Owl roost sites are also reported to be used repeatedly, as indicated by numerous pellets and whitewash below.<sup>1,9</sup> We

compare our observations of Barred Owl roost sites in the southern boreal forest of central Saskatchewan with these aspects of the traditional description of roost sites.

We marked 15 adult Barred Owls with radio transmitters in Prince Albert National Park and the adjacent Prince Albert Model Forest, Saskatchewan.<sup>7</sup> On 64 walk-in visits throughout 1993 and 1994, during daylight hours, we located radio-marked owls and made note of their daytime roost tree. When we walked to owl roost sites, more often than not, the owl would fly from



*Figure 1. Male Barred Owl near Waskesiu Lake, SK*

*Kurt Mazur*



its roost before we spotted it. Flight was evident from the radio signal which fluctuated from its normal even beep. On the 64 walk-in visits we observed only 16 roost sites of 9 individual owls. The other 6 owls continually flew before we were able to see them on their roost.

All 16 roost sites were in mixedwood stands (a combination of deciduous and coniferous tree species). We observed 11 roosts in deciduous trees: Trembling Aspen (*Populus tremuloides*), Balsam Poplar (*Populus balsamifera*) and Paper Birch (*Betula papyrifera*), and 5 in coniferous trees : White Spruce (*Picea glauca*), Black Spruce (*Picea mariana*) and Jack Pine (*Pinus banksiana*) (Table 1). This suggests that Barred Owls in the southern boreal forest of Saskatchewan do not select thick cover for roosting. During winter, we did observe owls roosting in coniferous trees, but they roosted as often in leafless Trembling Aspen that offered little thermal protection. Perhaps the owls were exposing themselves to the sun for thermal gain. In summer, we also observed owls in both coniferous and

deciduous trees. On a number of occasions owls were perched very high in Trembling Aspen, just below the canopy. Perhaps the owls were roosting in the shade of the canopy but high enough to catch the breeze. Our observations are similar to those of Barred Owl roost sites in the foothills of Alberta, where 19 of 25 roost sites were in deciduous trees (11 Trembling Aspen, 8 Balsam Poplar), and 6 in coniferous trees (White Spruce).<sup>8</sup>

We did not observe pellets and whitewash at roosting sites and concluded that the owls did not use the same site repeatedly, as has been reported by others.<sup>1,9</sup> Our radio telemetry data indicate that Barred Owls roosted in the area in which they were observed hunting the previous night, and often moved to a new area the following night to hunt. Spotted Owls in Oregon also have been observed to roost in the area last hunted.<sup>3</sup> In the boreal forest of Saskatchewan, Barred Owl home ranges in winter are, on average, six times larger than those found in the eastern and southern part of the species range.<sup>7</sup> With such a large home range,

**Table 1. Roost trees of nine individual Barred Owls in the boreal forest of central Saskatchewan.**

Tree Species	# Roost Sites per Season		
	Summer	Winter	Total
White Spruce	1	2	3
Black Spruce	1	-	1
Jack Pine	-	1	1
<b>Total Coniferous</b>	<b>2</b>	<b>3</b>	<b>5</b>
Trembling Aspen	5	3	8
Balsam Poplar	2	-	2
White Birch	-	1	1
<b>Total Deciduous</b>	<b>7</b>	<b>4</b>	<b>11</b>
<b>TOTAL</b>	<b>9</b>	<b>7</b>	<b>16</b>



repeated use of particular roost sites may not be energetically advantageous. Summer home ranges in Saskatchewan, however, are similar in size to those reported elsewhere; yet even in this season, Barred Owls did not use roost sites repeatedly.

The fact that in 46 out of 64 instances, owls flew before we could see them, and that we were unable to observe roosting sites for 6 of 15 radio-marked owls, suggests a large degree of shyness towards people. This avoidance of people is considered typical for the Barred Owl, as it generally inhabits heavily forested areas away from human activity. However, we observed some individual owls that were remarkably bold, allowing us to approach closely. These bold owls also nested in close proximity to human residences, suggesting that they were habituated to people.

### Acknowledgements

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"In order to stand in the right relation to wilderness, one must stand in the right relation to civilization". Evan Eisenberg, *The Ecology of Eden* p. xvi



# THE GREAT GRAY OWL IN MANITOBA, WINTER 1995-96 AND 1996-97

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In 1928, P. A. Taverner described the Great Gray Owl as "only a winter visitor in the settled parts of Canada."<sup>13</sup> In the intervening years much has been learned about this owl's distribution and habits. It is now known that this species is resident throughout much of the boreal forest of Canada, and in places even nests close to busy roads and residences.<sup>8</sup> Still, Great Gray Owls are usually more frequently observed during winter months, and in some winters this irruptive species may even be fairly abundant.<sup>1, 5, 9</sup> Occasional irruptions, that is, movements outside the usual range, may result from a combination of years of good reproductive success followed by abrupt prey declines.<sup>8</sup>

## Winter 1995-96

The winter of 1995-96 will be remembered in both Canada and the U. S. for the numbers of Great Grays that were seen. Winnipeg birder Gordon Grief reported : "This winter [there] appears to have been a continent-wide movement of Great Gray Owls. They have been seen in good numbers in Minnesota near Duluth, in Wisconsin and Michigan, southern Ontario and Quebec and even into northern New York and the Maritimes."<sup>4</sup>

For Wisconsin, Korducki noted: "While the numbers of Great Grays did not approach the winter of 1987-88, this year was unique in the magnitude of their wandering." Reports from southernmost areas of that state were "astounding".<sup>6</sup> On December 3, 1996, Beth Praeschaldt, Liscomb, Iowa, wrote

to me as follows: "I am wondering if you have heard of the 'invasion' of Great Gray Owls in Iowa in February 1996. There was one seen at Big Marsh in Butler County, central Iowa, from February 11-26. We saw it twice and it was wonderful!! That bird really put Big Marsh on the map. Another was a road kill just south of Big Marsh in Grundy Co. Another was reported January 10 in Black Hawk Co. – 15 miles away. Exciting times!"

Ontario birders were almost overwhelmed; for the Peterborough area, Sadler wrote : "In the winter of 1995-96, we watched in astonishment as numbers climbed steadily to more than 330 different Great Gray Owls in my study area."<sup>12</sup> Ridout estimated that more than 600 Great Grays were present in southern Ontario during March 1996.<sup>11</sup> Zoologist and owl specialist Jim Duncan referred to this winter irruption as "one of the largest documented in central and eastern Canada and the adjacent United States."<sup>2</sup>

For Herb Copland and myself, long-time owl-banders, this was the winter in which we banded 115 Great Gray Owls, surpassing our earlier record of 88 in winter 1978-79. Compared to the previous winter (1994-95), when Herb and I banded only one Great Gray, winter 1995-96, despite severe low temperatures and extended duration, didn't last long enough. We went out on 36 days, during which we drove 20,600 km. Our success in finding owls



depends on reports from observers, plus our familiarity with areas likely to be frequented by owls, and our knowledge of their habits. Unlike many previous winters, owls were scarce in extreme southeastern Manitoba. A few birds occurred west of Winnipeg and at least one spent several weeks in Winnipeg. We found owls as close as Selkirk, Libau and Tyndall, but the largest numbers occurred northeast of Winnipeg. Most of our birds were captured near Traverse Bay, Lac du Bonnet, Pine Falls and north to Manigotagan.

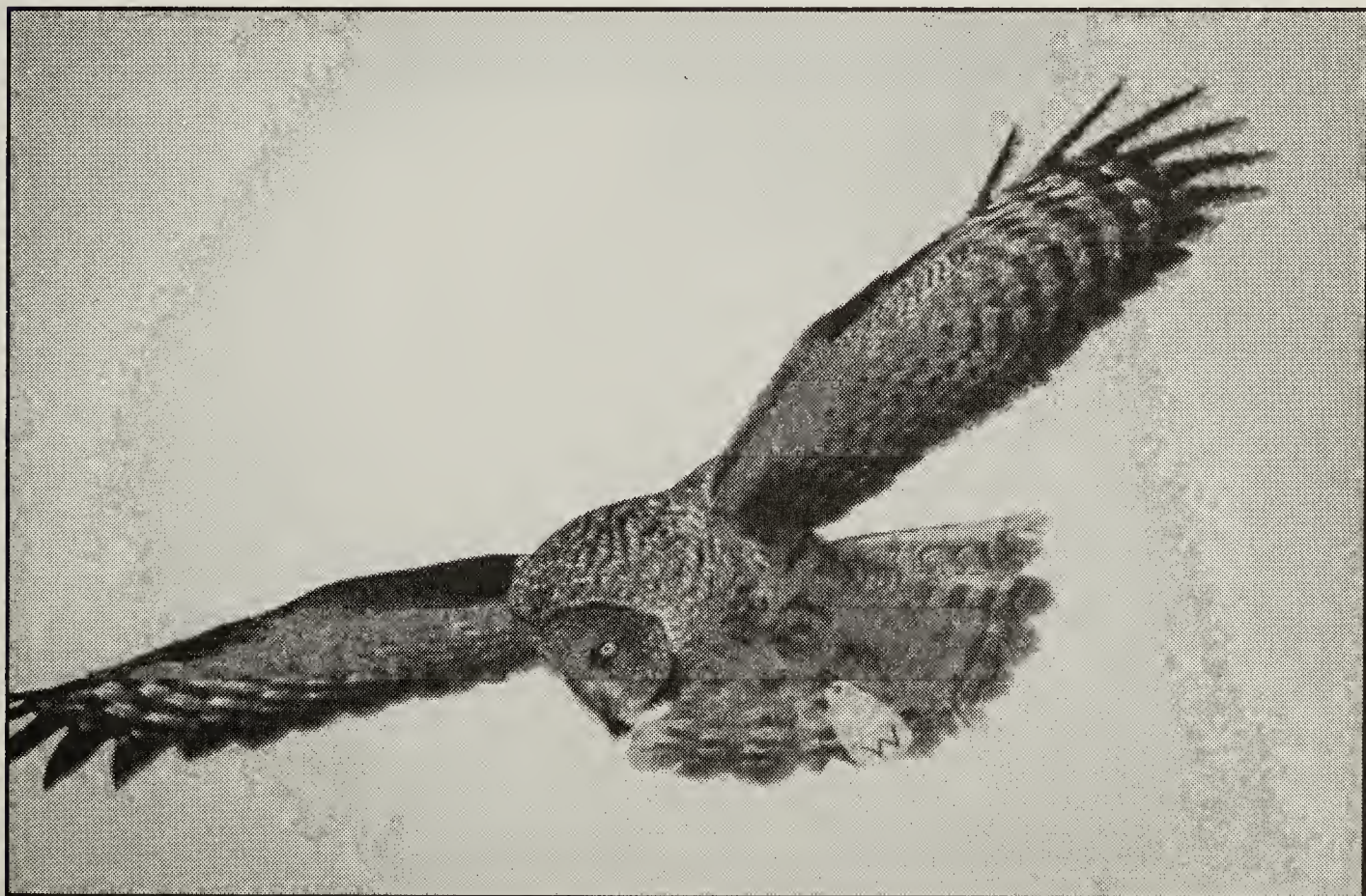
Owls began making an appearance in this area as early as October 27, when a road-kill was found near Great Falls. In November, I received seven reports of owls, including one of an owl apparently electrocuted at Victoria Beach on November 20. Things really began to happen in December, with nearly 50 reports reaching me. Daily counts that month included a high of 23 seen on December 29 by the McCall family driving from Powerview to

Manigotagan, a stretch of 71 km. Constable Rob McCall said that it was the highest number he had ever seen along a road he'd driven regularly for several years. Herb and I, on our last outing, April 13, saw at least 18 on that same road.

We found that 56 out of 126 owls, or 44%, that we examined that winter were 2-year-old birds, an age group not previously noted by us. These birds, from the 1994 hatch-year, were identified by their plumage. We concluded that a large 1994 hatch and a subsequent food shortage were factors partly accounting for the 1995-96 irruption of owls.<sup>10</sup> Similarly, Sadler, reporting on captured or injured owls that same winter in Ontario, found that "most were fledged in 1994".<sup>12</sup>

#### **Winter 1996-67**

The following winter, even larger numbers of owls were observed. Wisconsin columnist Roy Lukes wrote: "Surely the winter of 1996-97 will be entered in the Wisconsin Birding



***Great Gray Owl***

***Gerry Jones***



Records Book as the greatest winter invasion of the state by the great gray 'phantoms' ever witnessed by many fortunate people."<sup>7</sup> For Minnesota, Eckert noted that Great Gray Owl numbers that winter "were higher than in any previous winter on record".<sup>3</sup> In Ontario, Sadler found numbers of owls "almost as large" as in the previous winter.<sup>12</sup> Alberta banders Ray Cromie and Trevor Roper recorded high numbers of Great Gray Owls in both winters; they banded 39 in 1995-96 and a remarkable 144 in 1996-97 (Robert Gehlert, 1999, *pers. comm.*). Jim Duncan (*pers. comm.*) received reports of one or more Great Grays from 40 observers, not including Herb and myself.

This bonanza of owls provided a spectacular treat for delegates to the Second International Owl Symposium in Winnipeg in February 1997.

In addition to unusual numbers of Great Grays close to Winnipeg, there were good numbers of Northern Hawk Owls and Snowy Owls. When asked how we planned that feature, we said, of course, that the owls were coming to the widely publicized symposium. On February 9, I took out three symposium delegates who had been unable to attend the scheduled field trip. In less than 2 hours (from downtown Winnipeg and return) we found an incredible 25 Great Gray Owls, 9 Hawk Owls and 3 Snowy Owls. Two keen birders, Peter Taylor and Rudolf Koes, in an intensive search east of Winnipeg on March 2, found 32 Great Gray Owls! That same day, Diane Kunec and I saw 20 others in a small area north of Winnipeg.

Herb and I were in the field on 25 different days, from December 1, 1996 to April 10, 1997, during which we drove 13,287 km and banded 121 Great Gray Owls, giving us a total of 236 owls banded

over two winters. The total number of Great Gray Owls banded in this area by ourselves and our colleagues, especially Jim and Patsy Duncan, now stands at 1191 (which includes young and adults at nests and three rehabilitated birds). In the next two winters, by way of contrast, owls were notably scarce here. In 1997-98 we had only 13 reports of Great Grays. Accompanied by California raptor specialist Nikolle L. Brown, who flew here to gain some experience finding and banding owls, I drove 2,026 km in 5 days (January 29-February 2), going to all the good spots, and failed to find a single Great Gray Owl.

### Origin of Birds

The occurrence of an irruption of Great Gray Owls in two consecutive winters across the country from Alberta to Quebec requires some explanation. Could prey populations peak at the same time across this broad region? If so, then this might initiate a high production of young owls, thus augmenting the overall population. In winter 1995-96 an unusual number of 2-year-old birds, presumably hatched in 1994, were observed in Alberta (Gordon Court, 1997, *pers. comm.*), Manitoba and Ontario. That could set the stage for a second factor affecting population movement, namely a drastic reduction in prey levels.

The appearance of unusually large numbers of 2-year-old owls with an inhibited molt condition indicating food shortage in winter 1994-95 and/or spring and summer 1995, suggests this possibility.<sup>10</sup> Microtine prey species, that is, voles, are especially prone to fluctuating numbers, although it is not clear whether such a phenomenon could occur synchronously across the country. Weather, especially heavy snowfall and severe cold, also could force a wide scale owl population movement out of certain areas even



though Great Gray Owls seem well adapted to northern winter conditions. One uncertain aspect of this scenario is the origin of displaced birds. Despite the relatively large-scale banding efforts, little information is available on the post-winter location of irruptive owls. In Manitoba, there is some indication that the birds retreat northwards, presumably returning to their place of origin, but this is not well substantiated. Radio-telemetry of winter-captured owls would be enormously helpful in this respect.

Winter irruptions of Great Gray Owls are usually accompanied by other irruptive owl species, namely Boreal Owls and, especially, Northern Hawk Owls. In winter 1996-97, for example, Jim Duncan (*pers. comm.*) recorded sightings of one or more Hawk Owls by 51 observers. Given that the Hawk Owl, at least, is not a regular resident of the southern parts of Manitoba, when large numbers occur here they are almost certainly birds from more northerly parts of their range. The joint occurrence of

numbers of Great Grays and Hawk Owls probably indicates that the Great Grays are also birds from the north. Just how far north is not known.

Large numbers of Great Gray Owls in southern Manitoba in winter does not necessarily mean that there will be large numbers of breeding birds here the following spring. In fact, the opposite may be true. Those winters in which owls are seldom seen may mean that factors are favourable for nesting in the breeding areas, keeping the owls there. In winter 1998-99, for example, few Great Gray Owls were observed in southern Manitoba and adjacent Minnesota, yet nesting in 1999 was relatively high (Jim Duncan, *pers. comm.*) Moreover, irruptions of owls usually occur over a broad region, right across much of Canada and into the northern U. S. Here too, there is a suggestion that many of these birds, presumably affected by similar conditions of weather, food availability, etc., have been displaced a considerable distance.



**Herb Copland (left) and Bob Nero (with owl)**

**Norman R. Lightfoot**



## Acknowledgments

James R. Duncan kindly reviewed the manuscript and offered helpful suggestions for its improvement. I am particularly indebted to Herbert W. R. Copland, whose congenial companionship in the field all these years has made it possible to gain some insight into the ways of the owls. Thanks, Herb.

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"Gaia Hypothesis : Originally articulated by James Lovelock in the early 1970's, the Gaia Hypothesis puts forward the startling proposition that earth is a coherent entity, approximating in some ways a single organism. Earth is certainly, in this view, a self-sustaining system. The living planet, the hypothesis asserts, may be unconscious, but self managing."

Robert Paehlke, *Conservation and Environmentalism : An Encyclopedia*



# OBSERVATIONS ON NESTING RED-WINGED AND YELLOW-HEADED BLACKBIRDS AT MYERS WETLANDS, BRITISH COLUMBIA

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In 1997, the authors of *The Birds of British Columbia* series requested data on Red-winged and Yellow-headed Blackbirds for the fourth and final volume in the series (R.W. Campbell, 25 May 1997, *pers. comm.*). In response to this request, the survey reported here was undertaken. The objectives of the survey were (1) to examine blackbird nest construction and location, (2) to determine clutch and brood size and (3) to compare the above breeding data between the two blackbird species in a British Columbia wetland which had not previously been thoroughly surveyed.

## Procedure

The study was conducted at Myers Wetlands (49° 01'N, 119° 01'W; 40 km east of Osoyoos in the Okanagan valley), a privately owned area consisting of Myers Marsh and Myers Lake. Permission from the landowner was obtained prior to the study. The entire wetland area is 23.3 hectares and has a shoreline of 5.7 km.<sup>1</sup> Both the marsh and lake are relatively shallow, with the maximum depth of 4.2 m occurring in the center of the lake (B. Harpur, 3 June 1997, *pers. comm.*). The main emergent vegetation, cattail



Figure 1. Cattail patch in Myers Lake, BC

R.W. Campbell



(*Typha latifolia*), is not evenly distributed, but is present in patches in the shallowest regions of the marsh and lake (Figure 1). Bulrush (*Scirpus* sp.) also is present in a distribution pattern similar to cattail.

The wetland was surveyed completely from 3-4 June 1997, a period deliberately picked during the midpoint of peak blackbird incubation. The entire area was divided into four sections, roughly based on vegetation distribution. The author and five trained observers were assigned to one of the four areas to record the following data: location of nest, vegetation in which nest was built, construction material and contents of nest, and species that built the nest. Canoes were utilized to survey areas in deeper water. Water depth was measured with a meter stick apparatus. Stage of incubation was estimated by flotation of the egg in water.<sup>6</sup>

## Results

### Nest Construction and Location

Red-wing nests were compact, rigid cups lined with fine grasses and woven



**Figure 2. Red-winged Blackbird nest with two hatching eggs in cattail at Myers Lake, BC** R.W.Campbell

around the supporting stems of the vegetation to which they were attached (Figure 2). Nests tended to be built near the marsh shoreline in shallower water. Yellow-head nests also were compact, but had less rigid cups and were constructed mainly of, and were woven into, the surrounding vegetation (Figure 3). No fine grass lining was present. Yellow-head nests usually were built toward the centre of the marsh in deeper water.

There were 67 active Red-wing nests, all but one constructed in cattail, and 178 active Yellow-head nests, all constructed in cattail or bulrush (Table 1), (active nests = nests containing eggs and/or young, or showing signs of predation). Overall, significantly more nests were built in cattail than bulrush.



**Figure 3. Yellow-headed Blackbird nest with four eggs in bulrush at Myers Lake, BC** R.W. Campbell

Clutch and Brood Size. Data for clutch and brood size are presented in Table 2. The average clutch sizes were 3.6 for Red-wings and 3.4 for Yellow-heads (average clutch size= total number of eggs and young/total number of nests with eggs and young; all young were assumed to have hatched from the eggs of the parent blackbird). The average brood size was 3.5 for Red-wings and



**Table 1. Red-winged (RWBL) and Yellow-headed (YHBL) blackbird nest construction and location at Myers Wetlands, British Columbia**

Blackbird	Cattail Substrate	Bulrush Substrate	Location	Water Depth
RWBL	66 (98.5%) <sup>1</sup>	1 (1.5%)	near shoreline	0.18-0.30m
YHBL	112 (62.9%) <sup>1</sup>	66 (37.1%)	near center	0.36-0.42m

<sup>1</sup> Number of nests in cattail versus bulrush were significantly different for RWBL(*Chi-square*=63.06, *p*<0.001), YHBL (*Chi-square*=15.39, *p*<0.001), and for both species combined (*Chi-square*=37.71, *p*<0.001)

3.0 for Yellow-heads (average brood size= total number of young/total number of nests with young). The differences in clutch and brood sizes between species or between nests in cattail versus bulrush were not statistically significant. Three and four young were the most frequent brood sizes for Yellow-heads and Red-wings, respectively. One Yellow-head nest with five young was recorded.

**Discussion**

The observations recorded here represent a single point in time, not complete counts for an entire breeding season. Past literature has indicated that, when both Red-wings and Yellow-heads breed in the same area, Red-wings tend to occupy vegetation in

shallower waters toward shore, while Yellow-heads tend to occupy vegetation over deeper water.<sup>4,5,7</sup> The results of the current study corroborate these findings. Miller suggested that the more productive territories toward the center of a marsh would have higher survival in terms of more efficient feeding of the young and less extended flights away from the nest.<sup>2</sup> Moreover, risk of predation decreases with increasing depth of water under the nest. It is possible that Red-wings are able to occupy successfully the shallower water areas because their smaller body size not only requires fewer food items to meet metabolic demands, but may also allow Red-wings to forage more effectively through dense vegetation.<sup>3</sup>

**Table 2. Number of Red-winged (RWBL) and Yellow-headed (YHBL) Blackbird nests with each observed clutch and brood size at Myers Wetlands, British Columbia**

Nest Contents	RWBL	YHBL	Nest Contents	RWBL	YHBL
Empty	21 <sup>1</sup>	39			
1 egg	2	2	1 young	1	4
2 eggs	1	13	2 young	-	17
3 eggs	11	55	3 young	8	36
4 eggs	32	68	4 young	13	22
5 eggs	-	1	5 young	-	1

<sup>1</sup> Includes the single nest constructed in bulrush.



At Myers Wetlands, both blackbird species nested more frequently in cattail than bulrush. This is likely due to the fact that cattail was the predominant vegetation. In addition, cattails have a more complex structure than bulrushes. Their sheathing leaf bases provide hiding places for a variety of arthropods. Bulrushes have no sheathing leaf bases, have few insects present superficially on stems, and are flattened more readily by winter snow and rain than are cattails. In conclusion, the observed Red-winged and Yellow-headed Blackbird nest construction and location, as well as clutch and brood size at Myers Wetlands correspond to data reported in previous literature. The fact that a large number of nests were detected in a small area illustrates the importance of wetland habitat and of conservation.

### Acknowledgments

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“Viewed up close, the sloth appears as an ecosystem unto itself, softly vibrating with hundreds of ectoparasites. The sloth’s mottled appearance is due in part to blue-green algae that live symbiotically within its hollow hairs. A dozen varieties of arthropods burrow beneath its fur; a single sloth weighing a mere 4.5 kilograms may be home to more than a thousand beetles.”

Wade Davis, *The Clouded Leopard* p.124



# GREAT BLUE HERON COLONIES IN SASKATCHEWAN IN 1999, A PRELIMINARY INVENTORY

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Standing one metre in height, the Great Blue Heron, locally referred to as the "Blue Crane", is one of Saskatchewan's largest and most conspicuous colonial waterbirds. Yet, populations of this magnificent bird have gone largely unmonitored for the past three decades. Vermeer and Anweiler conducted the most recent province-wide survey of colony size and distribution in the summer of 1970.<sup>3</sup> They listed 31 active heronries ranging in size from 1 to 75 nests, distributed from the 49<sup>th</sup> to the 56<sup>th</sup> parallel.<sup>3</sup> Six years later, Roney (1976) revisited 13 of these colonies.<sup>2</sup> With the exception of two colonies found abandoned in the Qu'Appelle valley, his visit revealed no significant changes in colony size or activity from the 1970 survey. Until the summer of 1999, no other substantial initiatives had been undertaken to document colonies of this species in the province.

During the spring and summer of 1999, the authors conducted a preliminary inventory of the size and location of currently and historically active Great Blue Heron colonies in Saskatchewan. For purposes of this article, "historical" or "historically active" sites include those colonies reported to be active in the past but not active at the time of the inventory.

The goals of the study were to: 1) record data and report on any apparent changes in colony distribution and/or colony size since 1970, 2) develop a

comprehensive database of heron nesting locations across the province, and 3) establish a network of contacts to assist in future population surveys. Data on colonies were obtained by written and oral communication with conservation officers, biologists, naturalists, and landowners, with the exception of two colonies (Middle Lake and Harris Reservoir) personally visited by the authors. The two colonies visited were chosen because of close proximity to other field research projects.

## Colony Distribution

During the course of the study the authors received confirmation of active heron colonies in 32 locations across the province (Table 1), which betters by one the number of active colonies identified in 1970. Distribution across the province in 1999 was similar to 1970 (Figure 1), with the greatest number of colonies located in the Moist Mixed Grassland and Mixed Grassland ecoregions (Table 2). There did, however, appear to be a shift in colonies from the Mid-Boreal Lowland ecoregion, (8 colonies in 1970 and 4 in 1999) to the Boreal Transition ecoregion, (4 in 1970 and 8 in 1999).

During our inventory, 16 of 31 sites active in 1970 were reported on, however, only 5 were active (Harris Reservoir, Old Wives Lake, Buffalo Pound Lake, Bone Creek and Anglin Lake). A comparison of nest numbers in these colonies for 1970 and 1999 (Table 3) reveals a decline in colony size



Table 2. Active Great Blue Heron Colonies in Saskatchewan in 1999.

Location (Water body)	Year of First Report	Section	Township	Range	Meridian	Number of Nests
1 Blackbird Creek	1996	1	24	30	W1	12**
2 Old Wives Lake (Isle of Bays)	1913	29	13	29	W2	22
3 Beacon Hill Comm. Pasture*	1999	-	16	24	W2	3**
4 Caron/Bisant (near Pelican Lake)*	1998	25	17	29	W2	11**
5 Buffalo Pound Lake (Nicolle Flats)	1970	31	18	24	W2	5
6 Rocky Lake (small island in)	1924	36	18	24	W2	1
7 Lady Lake*	1999	13	35	2	W2	6
8 Middle Lake	1971	26	41	23	W2	12
9 Saskatchewan River (Thompson Island)	1980	18	49	17	W2	15
10 Saskatchewan River (opposite English Crk.)	1980	13	49	19	W2	50
11 Candle Lake	1971	29	55	22	W2	4
12 Anglin Lake (Christie Bay)	1970	10	55	27	W2	***
13 Lac La Ronge PP (Hillis Island)*	1999	-	72	19	W2	1
14 Borderland (SE) *	1999	1	3	1	W3	10
15 Consul	1999	30	4	26	W3	3
16 Harris Reservoir (Fleming Crk.)	1920	5	10	26	W3	52
17 Bone Creek (SE of Skull Creek)	1970	4,9	11	20	W3	15
18 Highfield Reservoir (Island)*	1998	25	15	11	W3	10**
19 Pelican Lake*	1998	-	18,19	1	W3	7**
20 S. Saskatchewan River (Rd Dr /S. Sask Forks)	1998	36	22	29	W3	2
21 Lake Diefenbaker (S. of Elbow)	1975	24	24	5	W3	20**
22 Eagle Creek	1998	8	32	12	W3	11
23 Eagle Creek*	1999	5	32	12	W3	10
24 Redberry Lake (New Tern Island) *	1999	11	43	9	W3	14
25 Dixon Lake	1998	-	44,45	23,24	W3	2**
26 Iroquois Lake	1982	25	49	8	W3	10
27 Big Shell Lake	1982	8	49	8	W3	***
28 Kimball Lake*	1998	-	62	19	W3	19
29 Mistohay Lake*	1998	-	63	21	W3	***
30 Flotten Lake (Island)*	1999	-	65	17	W3	20**
31 La Plonge Creek*	1999	-	71	11	W3	30
32 Ile a La Crosse (Big Island)*	1999	19	74	12	W3	10

\* New or previously unreported colonies

\*\* Data collected in 1998

\*\*\*Active but colony size unknown

Table 2. Distribution of colonies within Saskatchewan ecoregions in 1970 and 1999

Ecoregions	No. of Colonies		Latitudinal Range (Degrees)
	1970	1999	
Selwyn Lake Upland	0	0	58-60
Tazin Lake Upland	0	0	59-60
Athabasca Plain	0	0	57-59
Churchill River Upland	0	1	54-58
Mid-Boreal Upland	3	2	52-58
Mid-Boreal Lowland	8	4	53-54
Boreal Transition	4	8	52-54
Aspen Parkland	4	3	49-54
Moist Mixed Grass	5	7	49-53
Mixed Grass	5	5	49-52
Cypress Upland	2	2	49-50

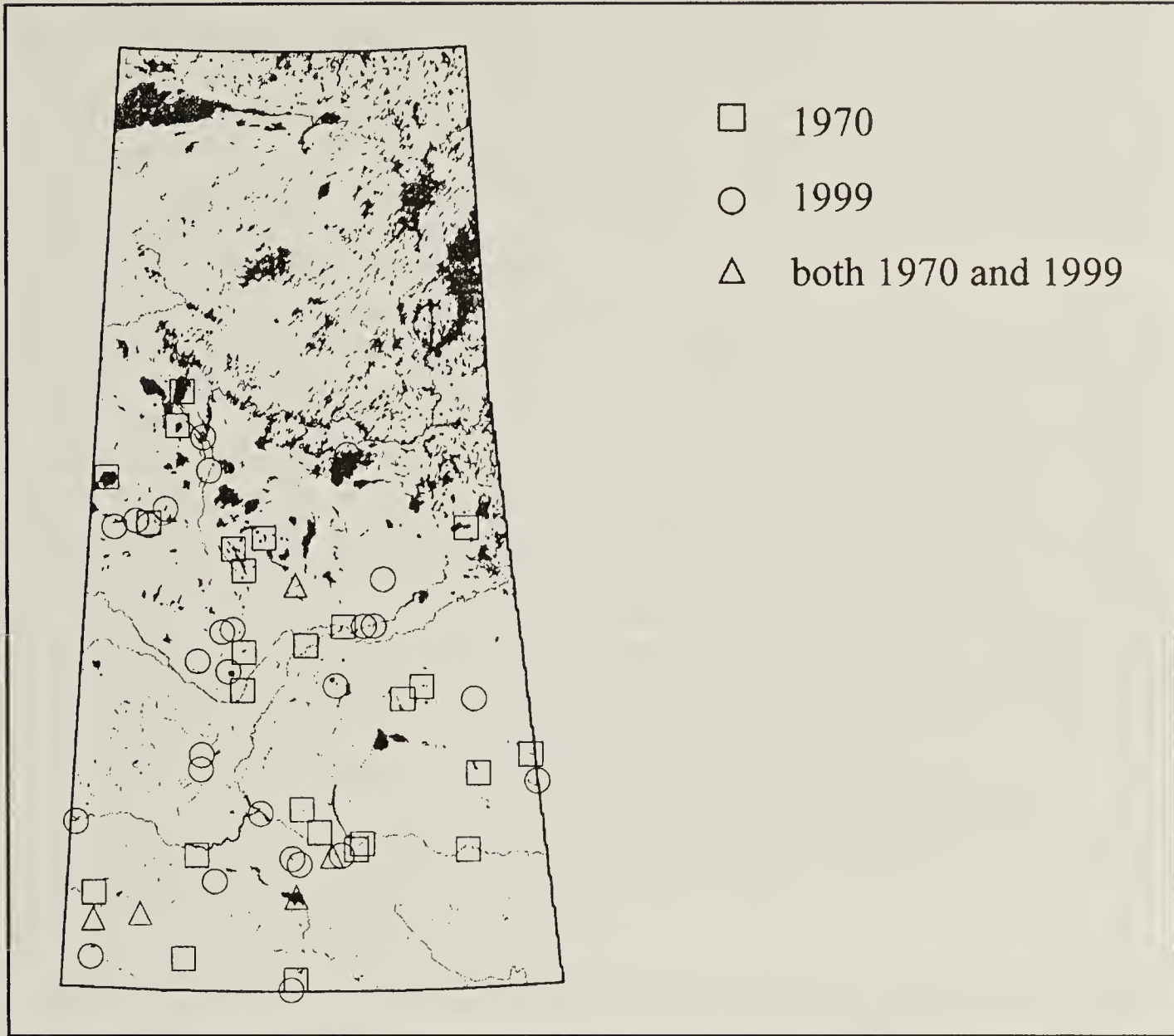
Table 3. Comparison of great Blue Heron Colonies Active in Saskatchewan in 1970 and 1999

Location	No. of Nests 1970	No. of Nests 1999
1 Buffalo Pound Lake	65	5
2 Harris Reservoir	65	52
3 Anglin Lake	40	*
4 Old Wives Lake	5	22
5 Bone Creek	50	15

\*Active but colony size unknown



Figure 1. Locations of active Great Blue Heron colonies in Saskatchewan in 1970 and 1999



in 3 of the 5 sites. Without more intensive surveys, it would be difficult to determine if these changes are reflections of a population decline or merely evidence of a very mobile, adaptive species.

Thirteen previously unreported colonies (noted by a single asterisk in Table 1) were added to a growing database of 32 current and 143 historical nesting sites. Of particular interest was a single nest heronry located on Hillis Island in Lac La Ronge. This is the first Blue Heron breeding record for the Lac La Ronge area and for the Churchill River Upland ecoregion (Table 2), as well as a rare report of solitary breeding.

**Colony Size**

The most important reason for conducting this inventory was to determine the size and trends of the heron breeding population. A trend analysis of Breeding Bird Survey results suggested that between 1966 and 1996 the Great Blue Heron population in Canada increased by 1.9% ( $P > 0.05$ ) per year. In contrast, the population in Saskatchewan as well as the Prairie Provinces is estimated to have decreased by as much as 6.8% ( $P > 0.05$ ) and 5.3% ( $P > 0.05$ ) per year, respectively.<sup>1</sup> Nest numbers from the authors' preliminary inventory also indicate a declining population. In 1999, identified heronries were composed of 1 to 52 nests with a mean of 10.9 nests



per colony. This is significantly lower ( $P < 0.01$ ) than the 1 to 75 nests with a mean of 26.8 nests per colony observed in 1970 by Vermeer and Anweiler.<sup>3</sup> Put another way, only 387 nests in 29 active colonies were reported in 1999, a decrease of more than 50% from the 830 nests in 31 colonies observed by Vermeer and Anweiler.<sup>3</sup>

Although these numbers are alarming, it is unclear whether they represent a real decrease in the total number of nesting pairs across the province or a stable, but more widely dispersed population (more colonies in 1999 than 1970 but with fewer nesting pairs). This question can only be answered when data on colony size from uncensused colonies as well as data from presently unidentified colonies are recorded. Until such time, the authors caution that the current data set is small and incomplete and therefore represents a minimum population estimate only.

### Database

During the course of the inventory, the database grew to include over 300 nesting records at 175 current and historically active nesting locations. The nesting records include information such as the number of adults, chicks and nests per colony in a given breeding season; other birds nesting with the herons; species of tree in which the heron nests are found; and location of nests (tree tops, or on the ground). Although ground nesting is rare, it has been reported in Saskatchewan. In addition to the nest records, the database contains information concerning colony location, disturbances (natural or human), as well as names of colony observers. All of this information is instrumental in reaching a better understanding of the population patterns and breeding strategies exhibited by this species.

### Contacts

The final goal of this study was to establish a network of individuals that could be contacted each year to report on the status of colonies in their region. At the conclusion of the inventory, the list of reporters and observers in the database had grown tenfold. It is hoped that these individuals will continue to provide information and that others not yet contacted will pass on any knowledge they may have about the colonies listed in Table 1 and/or currently unidentified colonies. The authors would also appreciate any information regarding colonies that are no longer active, such as years the colony was active, year of extinction, reasons for extinction, and, if known, coordinates of the colony's new location. With this kind of help, the most complete and up to date information can be maintained on past and presently active colonies.

In 1978, Roney warned that increased human activities on Saskatchewan lakes and rivers could threaten the success of the Great Blue Heron population.<sup>2</sup> Sadly, Roney may have been correct, as this inventory has revealed the recent loss of several prosperous colonies, including those on Horseshoe Lake, Marean Lake, Madge Lake and along the Qu'Appelle River. One conservation officer suggested that the loss in his region was related to increased human activities including boating, fishing, and cabin building near these colonies.

The results of the inventory highlight the need for a regular and comprehensive population census. At a minimum, an exhaustive survey should be conducted within the next two years to direct the course of future conservation initiatives. It is hoped that these preliminary results can serve as a stepping stone to better understanding and stewardship of



Saskatchewan Great Blue Heron populations. If we wish to retain this bird as a member of our avifauna, more effort must be put into monitoring their populations as well as protecting their nesting and feeding grounds from human disturbance.

**Acknowledgments**

Without the time and efforts of the following individuals and organizations, the goals of this inventory would not have been realized: Rhys Beaulieu, Nicole Bertrand, Gord Burrows, Warner Carlson, Chris Clark, Mark Cornderund, Ken Costley, Stewart Daia, Alan Debusschure, Chuck Deschamps, Dwight Dobson, Greg Fenty, Marcel Ferland, Mike Flodell, Brenda Flood, Dan Frandsen, Richard Friday, Debbie Greening, Marty Halpape, Wayne Harris, Rich Hidlebrandt, Paul Hopkins, Stuart Houston, Jack Howard, Brian Johns, Greg Johnson, Jeff Keith, Peter Kingsmill, Sean Krichkowski, Brad Mason, Ken Messner, Don McInnes, Jim Oliver, Dean Olsen, Joe Ottenbreit, Mark

Oulette, Jeanette Pepper, Bob Plaster, Darryl Robson, Keith Roney, Frank Roy, Michael Paschke, Fred Selsey, Mary Ann Scanell, Arnie Schmidt, Rick Shussel, Larry Slater, Darryl Stan, Jesse Stothers, Phil Taylor, Michael Tether, Robert Wapple, Mark Wayland, Don Weidl, Alan Winarsky, Kerry Wrishko, Jenifer Yantz, and The Kelsey Ecological Society.

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**~~INFORMATION NEEDED ON GREAT BLUE HERON COLONIES IN SK~~**

Although our many contributors were able to provide a great deal of information, many questions remain unanswered. As such, the authors would greatly appreciate hearing from anyone who has current or historical information pertaining to Great Blue Heron nesting activities in Saskatchewan. You may contact us at :

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## NOSTOC, A LITTLE-KNOWN IMPORTANT ALGA IN THE SASKATCHEWAN PRAIRIES

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*Nostoc*, a common alga, belonging to the division Cyanophyta (blue-green algae) or Cyanobacteria, occurs worldwide in a variety of habitats.<sup>5,8</sup> It is one of the most common soil algae growing in the native grasslands of Saskatchewan and occurs in disturbed areas, including recreation areas and agricultural fields.<sup>2</sup> It is also an aquatic alga occasionally seen in shallow lakes in southern Saskatchewan.<sup>6</sup>

The genus *Nostoc* contains many species, all producing abundant mucilage in which characteristic beaded filaments or trichomes are embedded (Fig. 1B-D). It occurs on soil in open grasslands of the prairies and is morphologically uniform with flat mucilaginous expansions. This species has been identified as *Nostoc commune*.

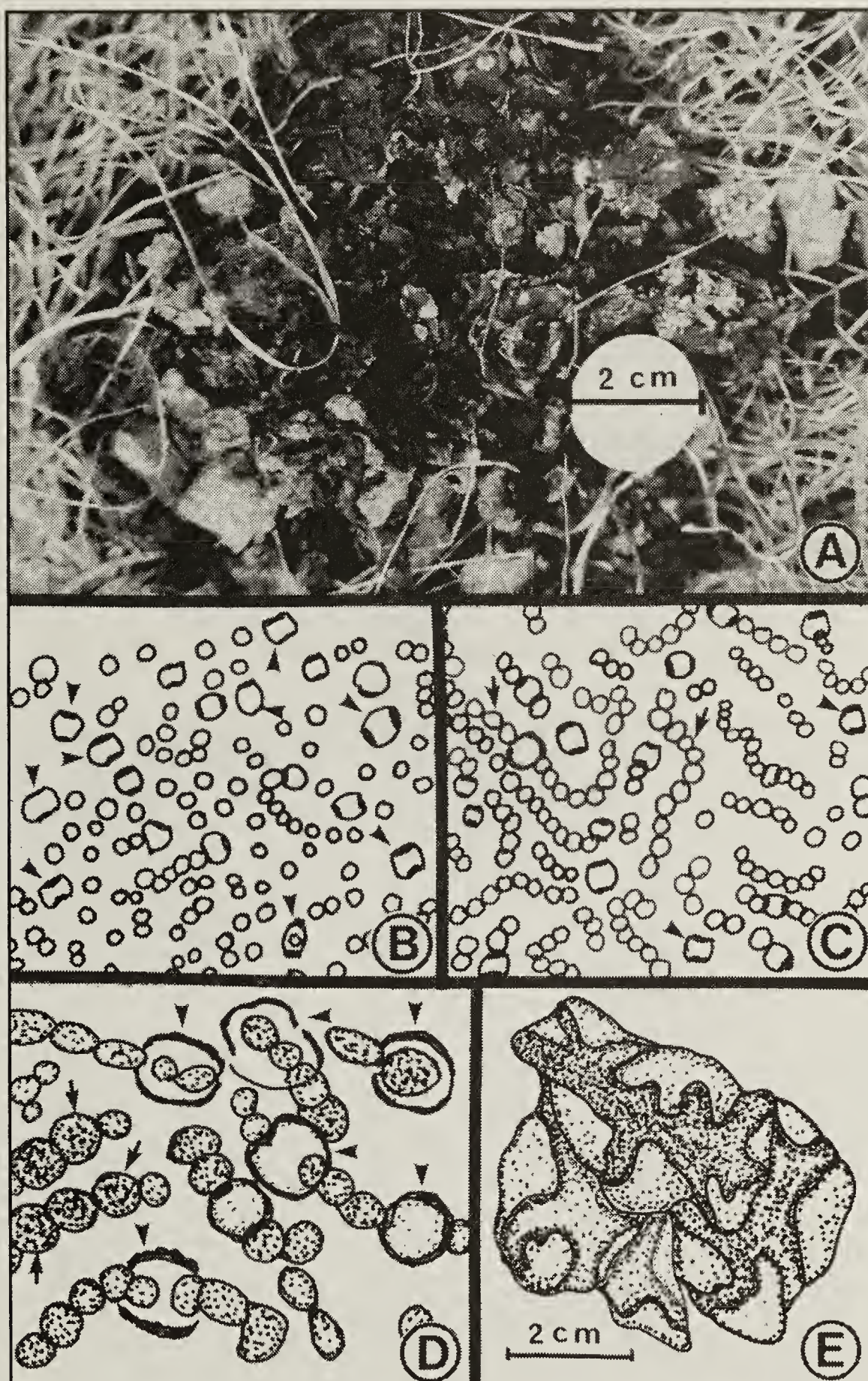
*Nostoc* is one of the common algae associated with filamentous fungi to form lichens (*Peltigera polydactyla*, a common lichen in the prairies). A lichen is a dual organism made up of a mycobiont (filamentous fungus) and a phycobiont (green or blue-green alga), such as *Nostoc*, exhibiting the phenomenon of mutualism. About 8 per cent of lichen species are known to contain cyanophycean (blue-green) phycobionts.<sup>5</sup>

On the prairies, *Nostoc* appears as patches of burnt paper and is found on

ground between grass hummocks (Fig. 1 A). These patches, technically known as "*Nostoc* colonies", occur throughout the growing season, but can also be found in winter under snow without showing obvious growth activity. In the growing season, following rain, these patches change to dark yellow or brown, becoming thick and slimy after imbibing water (Fig. 1E). *Nostoc* colonies have the ability to absorb water instantaneously when it rains, and can also retain water. However, the mucilaginous mass with imbedded algal filaments will desiccate during prolonged dry periods, becoming once again a dry papery structure, often seen in dry grasslands.

In the summer of 1999, the distribution of *Nostoc* colonies in the disturbed grassy areas around Wascana Lake, in Regina, was investigated. A survey was conducted on banks situated between Wascana Lake and the University of Regina Campus, an area designated to become a part of the Regina Plain Native Prairie Restoration Project in the city. This area is predominantly vegetated by Crested Wheatgrass (*Agropyron cristatum* (L.) Gaertn.) and Brome Grass (*Bromus inermis* Leyss.) and is highly disturbed by trampling, yearly mowing, etc. Twenty quadrats of 100 square meters each were selected to determine the abundance of *Nostoc* colonies. Although some lichens were





**Figure 1.** *Nostoc* - Habit and structure of the alga collected late in the Fall. **A.** Dried colony of *Nostoc* to show the habit consisting of brittle flakes of the alga embedded in dried mucilage. **B.** Dried colony soaked in water for a day and examined under low magnification. x 10. Note the diffusely distributed cells and the cell types and also some broken filaments. Arrow-heads point at heterocysts. x 40. **C.** The same colony, 4-days old in water with longer filaments. Arrows point at extended filaments and arrow-heads at heterocysts. x 40. **D.** Filaments from thallus of colonies soaked in water for several weeks. Note heterocysts (arrow-heads) and newly formed akinetes in filaments (arrows). X 80. **E.** A piece of water-imbibed thallus in water for about 5 weeks has thickened and curled up. It is different from fig. 1A. Scale is 2 cm.



present in the area, they were not included in this study.

Results showed that there was a mean number of  $8.35 \pm 1.42$  (standard deviation) independent *Nostoc* colonies with a mean algal area of  $68.35 \pm 13.14$  (standard deviation)  $\text{cm}^2$  per quadrat. The conversion of the area into square meters gives the occupied area of the alga  $0.007 \text{ m}^2$  per  $100 \text{ m}^2$ .

*Nostoc* species, like other members of the Cyanophyta, are ecologically significant because they are able to fix atmospheric nitrogen, converting it into nitrogen compounds.<sup>3,7</sup> The atmosphere, besides other gases, contains about 80% elemental nitrogen, which plants cannot use. In addition to nitrogen compounds, some carbohydrates and proteins are also released from *Nostoc* colonies, thereby enriching the soil. Nitrogen input into this ecosystem is likely trivial because of the small amount of *Nostoc* present but is important in natural prairies. According to one study in the Sand Hills Grasslands, a large natural prairie in south west Nebraska extending into South Dakota, the free-living and lichenized cyanophyte (mostly with *Nostoc*) colonies together covered 12 - 29% of surface area and contributed considerably to nitrogen fixation.<sup>4</sup> Their importance in soil fertility is substantial and well documented.<sup>4,10</sup> In native prairie grassland of Saskatchewan, many algae and bacteria are known to contribute to soil fertility, and *Nostoc* is one.<sup>2</sup>

In many parts of the world, especially in the humid tropics and subtropics, some species of *Nostoc* can grow luxuriantly into large mucilaginous flakes or balls (1-5 cm in diameter).<sup>5,8</sup> In China and Japan, they are considered edible and a delicacy. In some parts (India and Israel) *Nostoc* and other closely related genera have been used extensively to

reclaim parts of deserts for cultivation.<sup>3,5,8</sup> Some members of the Cyanophyta including *Nostoc* form dense mats that are known to help maintain moisture content (8.9%) of soil better than without them (1.3%) and to prevent soil erosion in deserts.<sup>1,4</sup>

*Nostoc* and other members of the Cyanophyta are regarded as the most primitive "plants" on earth.<sup>9</sup> They have survived evolution for millions of years without losing their unique cell-structure and the ability to photosynthesize and to fix atmospheric nitrogen. No wonder they are, as a group, ubiquitous and distinct!

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## NEW VASCULAR PLANT FINDS AT THE RENDEK ELM FOREST

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*Figure 1. Garth Nelson leading a group in the Rendek Elm Forest Nature Sanctuary. Mr. Rendek, second from right.*

*Richard Kerbes*



In December 1998, Vern Harms and Les Baker published a list of the vascular plant species found at the Rendek Elm Forest Nature Sanctuary owned by Nature Saskatchewan.<sup>1</sup> They based this list on a collecting trip made to the area on 9 July 1981. In the article, Harms and Baker stated that “a more intensive floristic inventory, continued over the growing season, would no doubt increase the species’ list” for the sanctuary.

The Rendek Elm Forest is about 25 km northeast of Hudson Bay at the confluence of the Red Deer River and Smoking Tent Creek. The forest consists of American Elms (*Ulmus americana*) and Manitoba Maple (*Acer negundo*) with a few other trees present in smaller numbers. The understory vegetation is unusually tall due to the high moisture level and rich soil found at this site; some Ostrich Ferns (*Matteuccia struthiopteris*) have leaves over 6 feet long! (Figure 1) Unfortunately, the elms in the forest are now threatened with Dutch Elm Disease. [Editors’ Note: According to Richard Kerbes, President of S.O.S. Elms, Dutch Elm Disease was found in the Rendek Elm Forest in 1999 and two infected trees were removed in May 1999 to try to slow the spread of the disease moving into the area along the Red Deer River.]

Two plant collecting trips have been made to the area since the preliminary list was published. Diana Bizecki Robson visited the Rendek Elm Forest on 13 June 1998 with Garth Nelson, Ruth Englund and Phyllis Bordass while on a tour of Nature Saskatchewan’s sanctuaries in the east central part of the province. Ten species of vascular plants not recorded by Harms and Baker were observed during this trip. On 30 May 1999 Vern and Ramona Harms observed and collected an additional 13 new species for the sanctuary. The total

number of families is now 34 (up four) and the total number of species 75 (up 23). Three of the species found are exotics: Smooth Brome (*Bromus inermis*), Creeping Charlie (*Glechoma hederacea*) and Dandelion (*Taraxacum officinale*). One of the new finds collected on 30 May, 1999 was the rare Smooth Yellow Violet (*Viola pubescens* Ait. var. *scabriuscula*), ranked S1 by the Saskatchewan Conservation Data Centre and known from fewer than 5 locations in Saskatchewan. We felt that these new additions should be listed in *Blue Jay*. The area has still not yet been explored in late summer and this would be a good time to look for additional species.

## **SPECIES LIST**

### **Asteraceae (Aster Family)**

*Taraxacum officinale* Weber;  
DANDELION. Roadside.

### **Caprifoliaceae (Honeysuckle Family)**

*Lonicera dioica* L.; TWINING  
HONEYSUCKLE. Woods.

### **Caryophyllaceae (Pink Family)**

*Moehringia lateriflora* (L.) Fenzl.  
[*Arenaria lateriflora* L.]. GROVE  
SANDWORT. Woods

### **Cornaceae (Dogwood Family)**

*Cornus stolonifera* Michx. [*C. alba*  
auct. p.p. non L.]; RED-OSIER  
DOGWOOD. Woods.

### **Cyperaceae (Sedge Family)**

*Carex peckii* E.C. Howe.; PECK’S  
SEDGE. Woods.  
*Carex sprengelii* Dewey;  
SPRENGEL’S SEDGE. Woods.

### **Fabaceae (Pea Family)**

*Lathyrus venosus* Muhl.; WILD  
PEAVINE. Woods.



**Grossulariaceae (Currant Family)**  
*Ribes oxycanthoides* L.; NORTHERN  
GOOSEBERRY. Woods.

**Lamiaceae (Mint Family)**  
*Glechoma hederacea* L.; CREEPING  
CHARLIE. Roadside.

**Liliaceae (Lily Family)**  
*Disporum trachycarpum* (S. Wats.) B.  
& H.; FAIRYBELLS. Woods  
*Maianthemum canadense* Desf. var.  
*interius* Fern.; TWO-LEAVED  
SOLOMON'S-SEAL. Woods.

**Oleaceae (Olive Family)**  
*Fraxinus pennsylvanica* Marsh.;  
GREEN ASH. Woods.

**Onagraceae (Evening-primrose  
Family)**  
*Epilobium angustifolium* L.;  
FIREWEED. Bank.

**Poaceae (Grass Family)**  
*Bromus inermis* Leyss.; SMOOTH  
BROME. Roadside.

**Ranunculaceae (Crowfoot Family)**  
*Thalictrum venulosum* Trel.; VEINY  
MEADOW-RUE. Woods.

**Rhamnaceae (Buckthorn Family)**  
*Rhamnus alnifolia* L'Her; ALDER-  
LEAVED BUCKTHORN. Woods.

**Rosaceae (Rose Family)**  
*Amelanchier alnifolia* Nutt.;  
SASKATOON. Woods.  
*Rubus pubescens* Raf.; DEWBERRY.  
Woods.  
*Rosa woodsii* Lindl.; WOOD'S ROSE.  
Woods.  
*Rubus idaeus* L.; CANADA  
RASPBERRY. Woods.  
*Potentilla anserina* L.; SILVERWEED.  
Bank.

**Salicaceae (Willow Family)**  
*Populus balsamifera* L.; BALSAM OR  
BLACK POPLAR. Woods.

**Violaceae (Violet Family)**  
*Viola pubescens* Ait. var. *scabriuscula*  
Schw.; SMOOTH YELLOW VIOLET.  
Woods. (S1; THR)

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Forest Nature Sanctuary in east-central  
Saskatchewan. *Blue Jay* 56 (4): 213-215



# FOUR INTRODUCED SPECIES NEW TO SASKATCHEWAN FROM THE 1990s

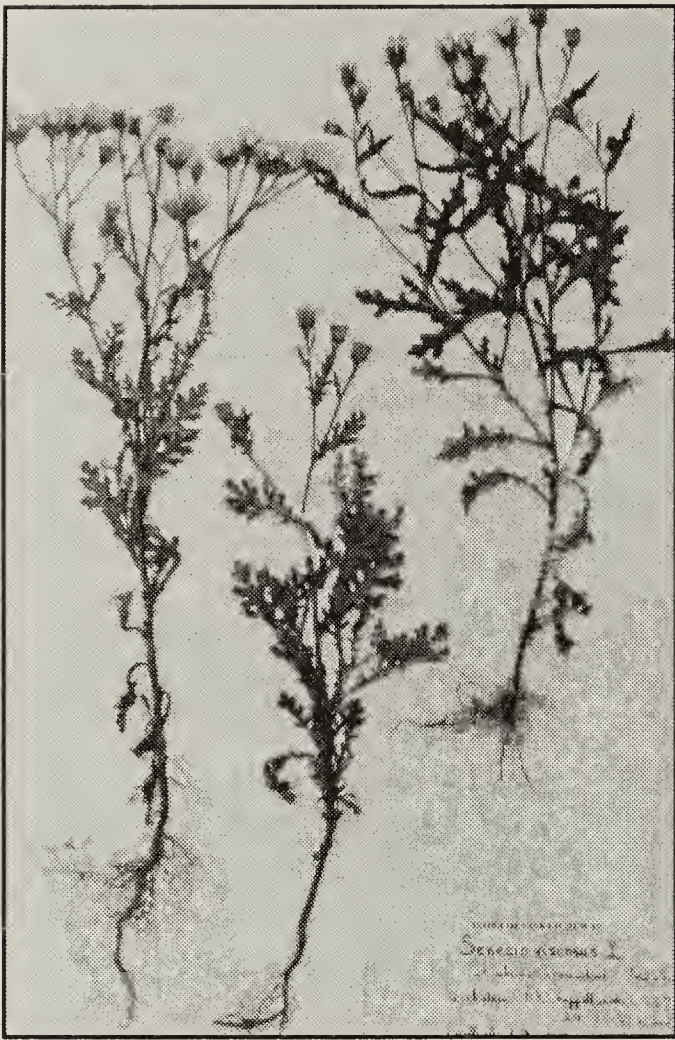
JOHN H. HUDSON, 103 Richmond Crescent, Saskatoon SK, S7K 1A9

The plant records reported here have  
nothing in common with one another  
except that they are all introductions -  
two weeds pure and simple, one forage  
grass, and one garden escape. There  
is a theme behind this - people write of

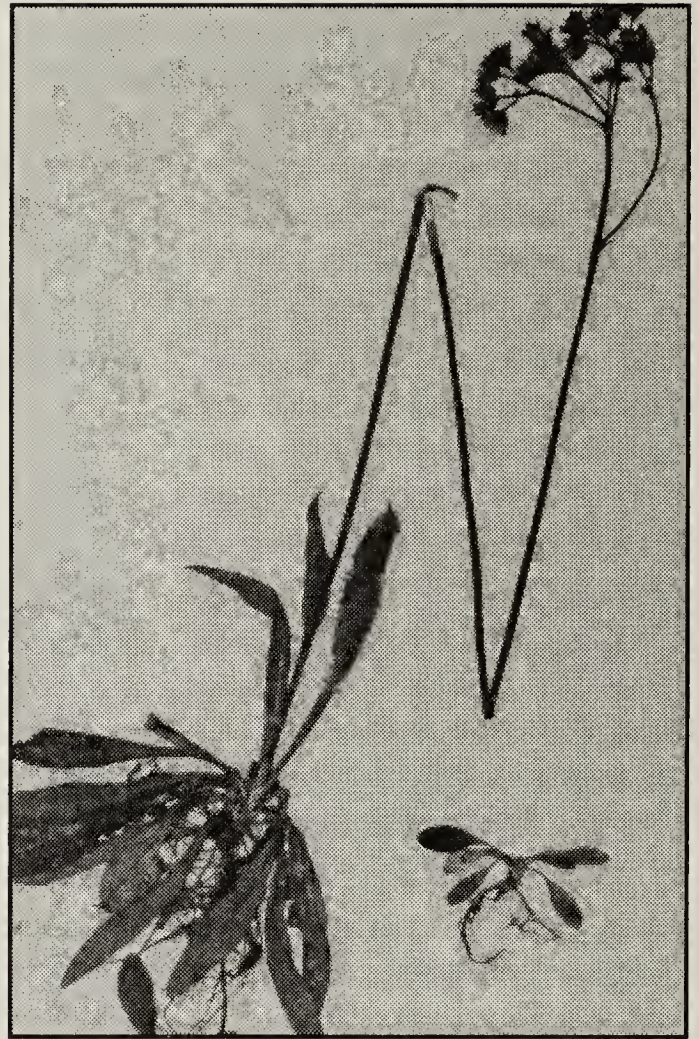
the plague of exotics already in our flora,  
but in this age of world-wide transport,  
more exotics keep arriving.

One of the mere weeds is *Senecio*  
*viscosus* L., Stinking Groundsel,





*Stinking Groundsel, pressed specimen  
in JHH collection*      *A. Leighton*



*Orange Hawkweed, pressed specimen  
in JHH collection*      *A. Leighton*

collected as #5128 <sup>a</sup> on 2 September 1993 as a weed in the CNR chappell yards at Saskatoon on L.S.D.7 in 24-36-VI W. 3<sup>rd</sup>. <sup>b</sup> This European exotic has been reported from Winnipeg and from B.C. and eastern Canada by Boivin and by Scoggan.<sup>1, 2</sup> Closer to home, Krivda reports it from The Pas, Manitoba, also from railway gravels.<sup>3</sup> Presumably, it arrived among us by rail.

Stinking Groundsel is much like the common, weedy *Senecio vulgaris* L., Common Groundsel, differing from the latter in its flower heads bearing rays 5 mm long and its leaves and stems having sticky pubescence. The glands of these hairs endow the plant with a smell of anaerobic sewage lagoons.

I checked in 1994 to see whether this plant was still present - it was - but since then my wanderings have not trended that way.

The other weed to report is *Hieracium aurantiacum* L., Orange Hawkweed or Devil's Paintbrush, collected at the junction of Highways 102 and 905, at lat. 56°15' 50" N and long. 103° 33' 15" W, 14 miles (22.5 km) west of Southend, Sask. Collection data are : "#5267, 13 Sept. 1996, small borrow pit at highway junction, 15-30 flowering plants and lots of offset rosettes." ("Offset rosettes" are first year rosettes of leaves borne on above-ground runners from the base of the parent plant, as seen in many species of Pussy-toes (*Antennaria* spp). Eventually these take root.)

This Hawkweed, like the legion of introduced hawkweeds of eastern Canada, differs from our native *Hieracium umbellatum* L., Canada Hawkweed, in its conspicuously spreading pubescence and its leaves all or mostly in a basal rosette. However, its reddish-orange ray-



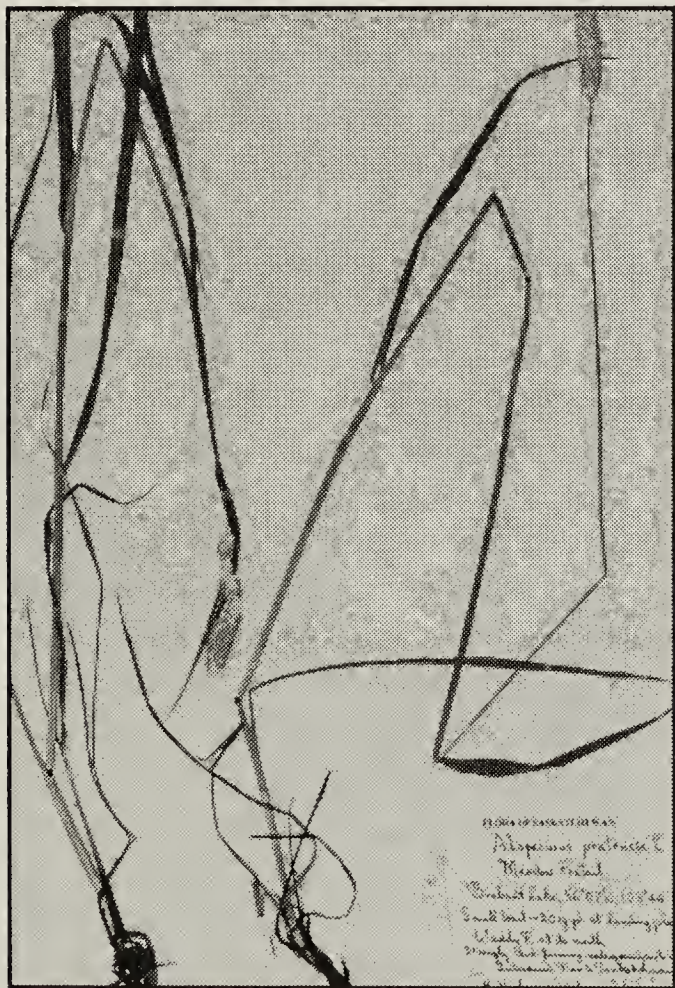
flowers unmistakably set it apart from all these other hawkweeds, and indeed, from all other Chicory tribe composites that one is likely to see in Saskatchewan.

The colony was still present in the summers of 1998 and 1999, but did not seem to have spread. Plainly, it came in by road transport. One would guess from its successful invasion of humid eastern Canada, that it must need humid conditions throughout the summer such as are found in the Prairie Provinces only far north in the Boreal Forest.

Another far northern discovery is *Alopecurus pratensis* L., Meadow Foxtail, collected as #5149 on 25 July 1994 at a landing place on the west bank of Waddy River at its mouth on Brabant Lake, (56° 07' N and 103° 44' W). This good sized grass, 5-10 dm high, looks like the cultivated Timothy except that

prominent awns project from the cigar-shaped spike-like panicles, and that it has rhizomes. Indeed, it formed so stiff a sod that major effort was needed to collect the underground parts. There was a patch of about 20 square yards at the collection site, and I saw a few plants 50 or 100 yards up river at another landing place. These landing places are on the south side of Highway 102. Just north of this road the river passes over a roaring falls coming out of Waddy Lake.

Floras state of Meadow Foxtail that it is a common meadow grass in Europe, also common in the introduced state in eastern North America and the West Coast. In the Prairie Provinces, Boivin gives four collection localities, two in eastern Manitoba and two in western Alberta.<sup>1</sup> Presumably, like Orange Hawkweed, only far northern Saskatchewan offers moist enough conditions for this grass to survive the summer.



Meadow Foxtail, pressed specimen in JHH collection  
A. Leighton



Garden Orpine, pressed specimen in JHH collection  
A. Leighton



Finding this grass at landing places may just be because in the northern coniferous forest only a landing place has the trees and shrubs hacked down and the moss and lichen trodden down, without other disturbance of the soil surface, so that a sward-forming grass can grow and persist.

The garden escape is *Sedum telephium* L., Garden Orpine, collected as #5172 from the road ditches of Highway 26 in sandy soil south of Spruce Lake village on L.S.D. 2 in 33-51-XX1 W. 3<sup>rd</sup> on 26 August 1994. This stonecrop must have escaped from cultivation but it was doing nicely - there were stands of it in the highway ditch for a couple of miles north of the collection location.

This Garden Orpine has fleshy, broadly oblong leaves 3-6 cm long by 1.5 - 2.5 cm wide, strung out alternately along the 3 - 5 dm high stem, which is topped by dense hemispherical bunches of small 5-petalled flowers of a pale yellow hue. Some floras, as Gleason, claim the petals to be red-purple; others, as Fernald, state them to be greenish yellow or creamy, as were those of this collection.<sup>4, 5</sup> For a garden escape, the flower color in the field will depend on what cultivar escaped in that particular area.

Boivin and Scoggan cite a collection of Garden Orpine from The Pas, Manitoba, along with the usual reports from B.C. and eastern Canada.<sup>1, 2</sup>

Duplicates of these collections have been sent to the W. P. Fraser Herbarium of the University of Saskatchewan, to that of the National Museum of Canada and to that of the University of Regina.

<sup>a</sup>All collection numbers are those of the author.

<sup>b</sup>An L.S.D. is a legal subdivision of a section, being one-sixteenth of a section or 40 acres in size. L.S.Ds are numbered in the same fashion as sections within a township. Section, township and range (in Roman numerals) designations follow the L.S.D. number and W. 3<sup>rd</sup> means west of the one hundred and third meridian.

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# INSECTS

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## A MONARCH DIARY

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Last summer we were fortunate to have a female Monarch visit our yard and deposit eggs on our Dwarf Milkweed (*Asclepias ovalifolia*) plants. We used this opportunity to observe the life cycle of the Monarch by raising some of the eggs indoors, and comparing them with those left in the garden. A diary of our observations follows:

**June 20:** About 1:30 pm on 20 June a Monarch flew into the back flower garden, immediately landed on one of three small milkweed plants and took nectar from the flowers. Several times she flew around the garden area but returned to take more nectar, and then we observed her laying a single egg on the underside of a milkweed leaf. She then flew to the front flower area, which contains three clumps of milkweed plants, and continued laying eggs. She flew from our yard, but over the next three hours, she (or possibly other females) returned and continued to feed and deposit eggs. Twelve eggs were located, but we suspect more may be on plants in the centre of the front garden, which are not accessible. The weather is hot and calm.

**June 26:** We brought in milkweed leaves with two eggs attached; one from the front and one from the back garden. We placed the stems of the leaves in a shallow container filled with gravel and water. This was placed inside a larger glass jar which was covered with fine netting and a ventilated lid. The weather has turned cool and wet since the 20<sup>th</sup>

and we are concerned that the eggs may not hatch.

**June 29:** Sometime during the early morning the two eggs inside the house hatched. The caterpillars (C1 and C2) are 0.2 - 0.3 cm in length. The eggs outside have not hatched. The weather continues to be cool and overcast.

**July 3:** At 9:00 am the eggs outside were checked and six caterpillars were found. The previous evening only eggs were found. By evening all known eggs outside had hatched. C1 is 0.4 cm in length, and C2 is 0.5 cm.

**July 6:** We continue to provide fresh milkweed leaves to C1 and C2, whose lengths are now 1.0 and 1.6 cm. There is no apparent reason for the difference in growth rate.

**July 7:** C1 and C2 have grown to 1.5 and 2.0 cm.

**July 14:** C1 and C2 have reached 4.7 and 5.2 cm. They eat most of two large milkweed leaves per day between them. The caterpillars outside are about 1.1 cm long and we have located seven of them. A few are eating the milkweed flowers as well as the leaves.

**July 17:** Early in the day one of the two indoor caterpillars climbed to the top of the glass jar (they are now about the same size and can't be differentiated). A fair bit of silk can be seen on the glass where the caterpillar climbed up the jar. By 5 pm this caterpillar had assumed





**Figure 1. Monarch caterpillar hanging in the form of the letter J.**

*Keith Barr*

the "J" position (Figure 1) and is hanging from the curved side of the glass. By 10:00 pm the other caterpillar had climbed to the lid of the jar and started to pupate as well.

**July 18:** At 12 pm the first chrysalis was formed. By 10:00 pm the second pupa had shed its skin and revealed the chrysalis (Figure 2).

**July 21:** About 8:00 pm we found five of the outside caterpillars. They appear to be resting on the underside of leaves of the Goldflame Spirea and Rough-false Sunflower, plants adjacent to the milkweed. Two of the caterpillars are 2.4 cm, two are 2.6 cm and one is 2.7 cm in length.

**July 24:** Seven caterpillars were found outside.

**July 25:** Only five caterpillars can be found. Two are 4.0 cm, two are 4.5 cm, one is 5.0 cm and one is 5.5 cm in length.



**Figure 2. Monarch chrysalis.**

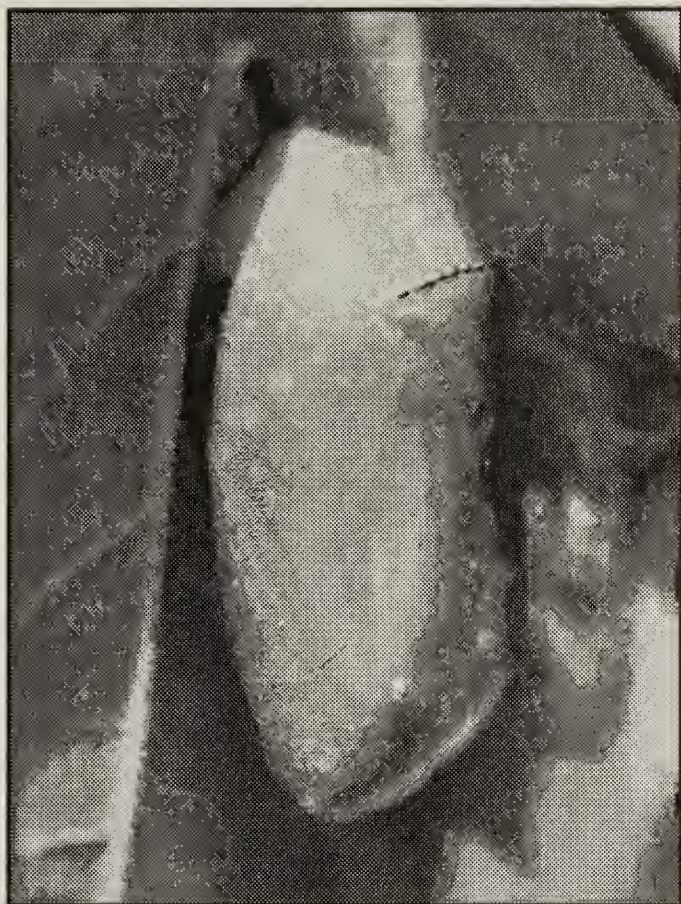
*Keith Barr*

**July 26:** We have located nine caterpillars: eight near the sidewalk and one smaller one in the centre of the front garden. In the evening we located one more caterpillar by the sidewalk that was smaller than the rest - only 3.5 cm long.

**July 28:** Ten caterpillars were found ranging in size from 4.5 to 5.5 cm. Evening seems to be the best time to locate the caterpillars. We have noticed that when feeding the caterpillars first cut about two-thirds of the way through the leaf stem, let the leaf fall to rest against the main stem, and then eat the leaf. Are they cutting off the flow of sap while they feed? Damage to any part of the plant causes the white sap to flow.

**July 30:** In the evening we notice the inside chrysalides have turned from the bright green to an opaque grey, through which some orange, black and white colouration can be seen (Figure 3).





**Figure 3.** *Monarch chrysalis with black veins on wings visible inside.*  
Keith Barr



**Figure 4.** *Newly emerged female on transparent chrysalis shell.*  
Keith Barr

**July 31:** By the early afternoon wings can be clearly seen through the pupae cases of the two indoor chrysalides. One of the caterpillars outside has begun to pupate. It was found hanging underneath a milkweed leaf in the "J" position. Between 10:30 and 11:05 pm a male Monarch emerged from the first chrysalis formed inside the jar in the house. The thin chrysalis shell left behind is transparent (Figure 4).

**Aug 1:** At 8:15 am the second butterfly indoors emerged from its chrysalis and is a female. Later that day we let both butterflies go. One was placed on a Meadow Blazingstar flower and the other on a Rudbeckia flower (Back Cover). They sat on the flowers occasionally opening and closing their wings. After 15 to 20 minutes they flew away. We brought in one of the outside caterpillars that was found in the "J" position and taped its leaf to the top of another jar. By evening it hadn't shed its skin.

**Aug 2:** The third caterpillar in captivity has shed its skin and the chrysalis has formed. We haven't seen any of the outside caterpillars for a day or two, except for a small, discoloured dead one. We assume the others have moved to sheltered spots to pupate.

**Aug 16:** A male Monarch emerged from the chrysalis indoors. He was released in a sheltered area as the weather was cool and wet. Later in the day he flew high into a Manitoba Maple when the sun appeared.

**Aug 21:** A male Monarch was seen in the morning feeding on purple Summer Phlox and pink Monarda in a neighbour's flower garden. Was it one from our yard? A female was seen in the afternoon resting in the Mountain Ash tree in our front yard. Both were in "new" condition.

**Aug 22:** At about 10:00 am a female Monarch was seen resting on a hanging



geranium in the back yard. It flew to a Red Elder, rested, and then left the yard.

**Aug 23:** A female Monarch was seen resting on the Mountain Ash in the front yard.

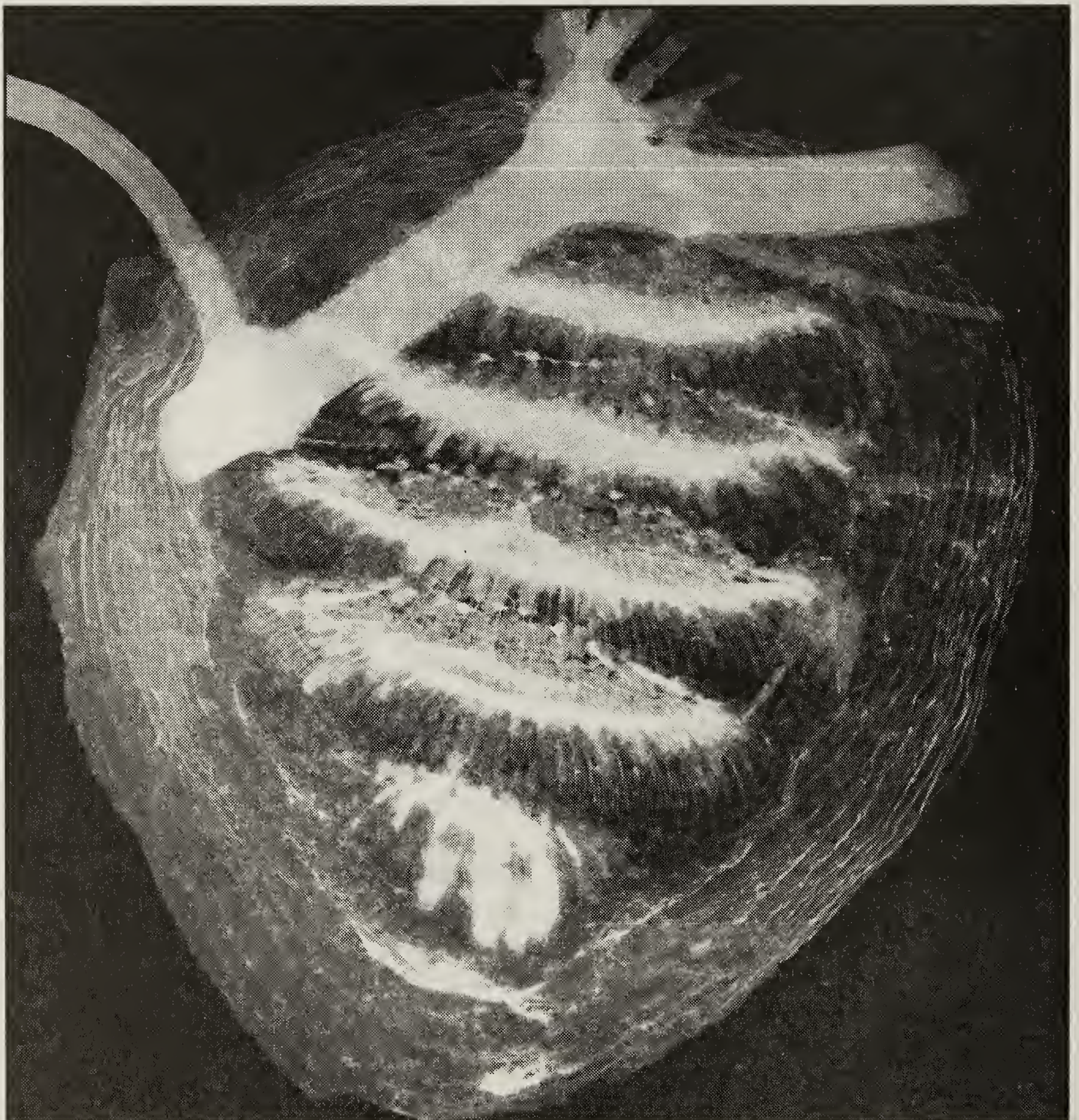
**Aug 25:** A male Monarch was seen resting on the Mountain Ash at about 5:00 pm.

**Aug 26:** At 9:00 am, a male Monarch flew out of the front flower garden and rested on the Willow tree.

Note: all of the Monarchs from Aug 21-26 exhibited emergent behaviour - perching and slowly opening and closing the wings.

**Aug 27:** At 3:00 pm a Monarch flew from the front flower garden and left the yard. Sex could not be determined. This was the last sighting in our yard of a Monarch in 1999.

This article is reprinted from *Saskatchewan Butterflies 1999*.



*Wasp nest interior*

*Hans Dommasch*



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# NOTES AND LETTERS

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## SURPRISES ALONG THE *OTHER* MEWASIN TRAIL

In Loon Lake on Nov. 1, 1999, my husband, Geoff, and I had some free time for hiking in the area. We chose the Mewasin Trail because we thought that the one and only trail by that name was in Saskatoon. Also the hike was recommended by our Loon Lake host and it is included in Robin and Arlene Karpan's book, *Saskatchewan Trails*, which we carry everywhere.<sup>1</sup>

The Mewasin Trail is located in Makwa Lake Provincial Park. The leafless trees and lack of snow did not promise an interesting hike, but frequent signage gave us an idea of what we might see given ideal conditions. The signs were designed and made by Loon Lake teacher and environmentalist, Kathy Hirschfeld, and members of her high school science classes. Each sign includes a drawing or photograph of the featured animal or plant, an interesting fact about it and its role in a native legend or folklore. Fifty of these trail markers entertained us along the way. So much so, in fact, that when we did see some flesh and blood wildlife, we nearly jumped out of our boots.

Responding to crackling branches in a nearby Jack Pine, we looked up to see a chestnut-furred Fisher. This beautiful, catlike animal stared back at us and then made a quick exit down the tree, weaving in and out of branches, before leaping to the ground and then slinking off into the understory of alder, saskatoon and wild rose. By the time I had prepared my camera for a shot, the prize had disappeared. After this blunder, I kept my camera close at hand.

Geoff discovered our second surprise of the day. He noted a hammering beat coming from a stand of white birch. We looked more closely and discovered a male Black-backed Woodpecker pounding with all his might on a large black scarred patch just above eye level on a birch trunk. He appeared oblivious to us, so I took many photos. Between the dark background of the scar and the imposing dusk, the bird was well camouflaged and difficult to see on film.

At the halfway point of our hike, we were acknowledged by a large flock of chickadees, quite an eyeful (as well as an earful) for us city dwellers who enjoy no more than four at a time in our home feeder. Our next treat was to see three white-tailed deer. They stared at us for a few precious moments, as deer do, before taking flight. Scat along the trail told us that coyote, rabbit and skunk had also shared this path. The Karpan's guide book warns of bears. These we did not see.

Although the hike is not challenging lengthwise—a two km short loop or a three km long loop—it is well worth taking, as a flock of chickadees convinced us along the way.

1. Karpan, Robin and Arlene. 1999. *Saskatchewan Trails: A Guide of Nature Walks and Easy Hikes*, Parkland Publishing, 501 Mount Allison Place, Saskatoon, SK. S7H 4A9.

- *Judith Benson*, 1048 Spadina Crescent East, Saskatoon SK S7K 3H7



## TWO UNUSUAL LOGGERHEAD SHRIKE NESTS

Between 12 May and 15 June 1997, I conducted wildlife surveys 50 km south of Hanna, Alberta in Twp. 25 & 26, Rge 15 & 16-W4M. On 12 May 1997, I noticed a lone Loggerhead Shrike perched on a barbed wire fence in an area of open mixed grass prairie. At the time, I didn't pay much attention to the presence of the bird. Shrub cover, including sagebrush, was lacking and I felt that the bird was probably passing through the area.

However, I saw a shrike in the same area on 15, 17 and 19 May 1997. By this time my curiosity was peaked, so I stopped to watch the bird for a few minutes. Within five minutes, I observed the bird fly into a pile of tumbleweed (identified later from photographs as primarily Russian Thistle, *Salsola kali*) that had gathered in the corner of a fence (Figure 1). The tumbleweed was piled about 1.2 m high. Two shrikes flew out from the pile of tumbleweed as I approached. Closer examination revealed a nest containing six eggs, in the middle of the pile, about 50 cm



**Figure 2. Shrike nest in tumbleweed**  
Greg Wagner

above the ground (Figure 2). All was well with the nest when I checked it on 31 May and 10 June.

When I checked the nest on 14 June it was empty. However, an adult was still present in the area and as I was walking away from the first nest I discovered a second nest about 4 m from the first. It was located in a small pile of tumbleweed that had collected



**Figure 1. Pile of tumbleweed with shrike nest.**

Greg Wagner



along the bottom wire of the fence to a height of about 30 cm. This nest was approximately 25 cm above the ground. It contained 7 eggs. Unfortunately, I did not have a chance to revisit this nest to check on its progress.

In southern Alberta, Loggerhead Shrikes typically use small trees, shrubs and, occasionally, sagebrush for nesting.<sup>2-4</sup> Although uncommon, three nest sites in tumbleweed have been reported in Alberta<sup>3, 4</sup> and one in California.<sup>1</sup>

1. Bent, A. C. 1950. Life Histories of North American Wagtails, Shrikes, Vireos and Their Allies. Dover Publications Inc., Reprint 1965, New York. 411pp + plates.

2. Bjorge, R. R. and D. R. C. Prescott. 1996. Population estimates and habitat associations of the Loggerhead Shrike, *Lanius ludovicianus*, in southeastern Alberta. *Canadian Field-Naturalist* 110:445-449.

3. Collister, D. M. 1994. Breeding ecology and habitat preservation of the loggerhead shrike (*Lanius ludovicianus excubitorides*) in southeastern Alberta. M.D.P., Faculty of Environmental Design, University of Calgary, Calgary, AB. 161 pp.

4. Wershler, R. M. 1989. Nesting habitat and abundance of the loggerhead shrike (*Lanius ludovicianus*) in two key areas of southern Alberta. Prepared for World Wildlife Fund Canada and Alberta Fish and Wildlife. 27pp.

- Greg Wagner, Faculty of Environmental Design, University of Calgary, 2500 University Drive N.W., Calgary, AB T2N 1N4

## TO SAVE A MOCKINGBIRD

Reserve, Saskatchewan, 54 km from Hudson Bay, once a bustling little town with post office and stores in the early '40's, is now a collection of hunting cabins occupied year round by only two families. It comes alive during the hunting season. Completely surrounded by tall forest, you feel there a peace and serenity of unhurried times. My son Curtis and I visited Reserve on March 29, 2000 on a special mission. A quiet sunny day, the pungent smell of wood smoke wafted our way. Terry Tretiak, a Yorkton resident who owns a cabin in Reserve, was boiling down the maple sap he had collected from his own trees on a wood-fired heater in his yard. We greeted him, but hurried on to the home of Betty and Fred Darmochid to see the mockingbird that they had rescued from certain death.

Betty, Fred, and their fourteen year old son, Shane, have a deep love for the land, the forest and all creatures. Deer, moose and elk wander down the dirt street or are seen in the nearby forest. Bear tip over the garbage cans. Squirrels over-winter in a nest box the Darmochids lovingly erected in a tree and filled with wool and car-cushion stuffing. Bird feeders are everywhere. Betty's animated voice tells of the chipmunks they have raised in a cage, of the chickadees they kept, of the Song Sparrow who, left behind in the fall migration, was fed and sheltered through the winter, and of the one-legged "whiskey-jack" (Gray Jay) they feed. The jay nested in nearby trees and brought her babies to show them in early May last year.

It was in November 1999 that the Darmochids first noticed the "different" bird. At first, Betty thought it was a skinny whiskey-jack. Then she noticed the slender bill, the white wing patches, the



white on the tail, and the yellow eyes. It didn't fluff out its feathers to provide insulation from the cold as the other birds did.

As coincidence would have it, Betty's friend had left a bird book - *Birds of Canada* - after a late fall visit.<sup>1</sup> "In case you see a different bird," she had said. Betty soon discovered that the skinny whiskey-jack was a Northern Mockingbird, whose range is the southern states of the United States. The *Atlas of Saskatchewan Birds* showed some sightings of the Northern Mockingbird in Saskatchewan, most in the southern part of the province and gives its status as "a rare summer resident or transient, and very rare winter visitant."<sup>2</sup>

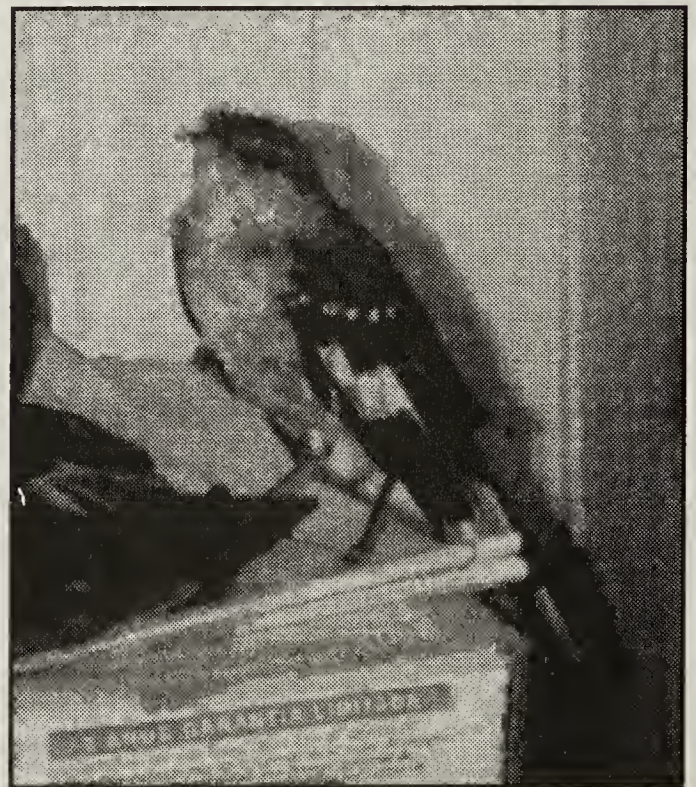
Throughout November and December, the Darmochids attempted to catch the mockingbird, who was obviously suffering, but to no avail. On January first, at -35° C, Fred Darmochid went outside, looked down, and there, huddled by the wall, near death, was the mockingbird. Luckily, the cat had declined a trip outdoors earlier in the day because of the cold weather! The bird was brought indoors where the warmth soon revived it.

Now, what does one do with a mockingbird? Betty got on the Internet and found out that its food was, among other things, seeds and cranberries. Sunflower seeds and thawed cranberries were offered and declined. By experimenting, Betty found out what foods it would eat. These included: strawberries, watermelon, honeydew melon, cooked meat (with a strong preference for Black Forest ham - Betty limits this because of the salt content), apples, warmed-up potatoes with onions, and newly-caught flies. It does not like raw meat, pasta or blueberries.

After about two weeks, the toes on the left foot dropped off due to freezing, leaving only a stump. Some time later, part of the lower jaw dropped off, so that only about one quarter of an inch of the lower bill remained. These handicaps make it difficult for the bird to pick up food, but it perseveres, getting food on the side of the bill, then flipping it into its mouth with a shake of the head. The bird also can't preen itself, so Fred and Shane give it a bath once a week, which it dislikes.

Most of the time, the mockingbird lives in its cage by the window in the dining room. When it has no food, it goes to the corner of the cage and watches Betty in the kitchen. It likes Betty. When she sits crocheting by the table, it gets on the side of the cage closest to her and chirps.

Sometimes the mockingbird is allowed freedom in Shane's room, where it flies from picture to stove pipe to deer antlers to the house plants, perching with difficulty. Even the toes on the right foot don't seem to close around things tightly.



*The Darmochids' Mockingbird*  
*Leona Pollock*



"The bird," as Betty calls it, is bright-eyed and lively, seemingly in good health. The Darmochids are not sure what the next step will be - let it go free when the weather warms up, or build a large, enclosed pen outdoors where they can continue to feed and care for it. For now, it is well cared for and has provided much interest and enjoyment for this nature-loving family.

1. W. E. Godfrey. 1986. *The Birds of Canada*. National Museum of Natural Sciences, Ottawa.

2. Smith, A.R. 1996. *Atlas of Saskatchewan Birds*. Special Publication No. 22, Saskatchewan Natural History Society (Nature Saskatchewan), Regina.

- *Leona M. Pollock*, P.O. Box 255, Preeceville, SK S0A 3B0

## **CALIFORNIA CONDOR AT KERROBERT, SK**

April 27 was just another ordinary day at the farm. Lance, my husband, was out doing chores. David, 13, and Jessica, 9, are home-schooling and they were studying at the table. Tamara, 19, was also at the table working on a dental assisting course.

At about 9:45 the phone rang and Lance said excitedly, "Look above the house. There's a big bird!" We all ran out onto the deck and looked up. Seconds later Lance joined us. The bird was so big and so different that we could hardly believe our eyes. David ran back in and got the binoculars.

As the bird circled above the house, we all had an excellent view. Our first thought was that it was a Turkey Vulture because the head looked so disproportionately small and tucked between its huge black wings. Lance's

parents, who came outside to look, thought the same thing. They had seen many in Alabama while visiting their daughter. Puzzling, though, were the creamy wing patches. The wings were held straight and had very jagged tips. It soared around in the blue sky, never flapping.

The bird drifted to the northwest and, within 10 minutes of the first sighting, it was a speck in the sky. Not once did it flap those enormous wings.

Later that day, Lance and David were out in the field, harrowing. They got out to adjust something and while Lance was working, David was searching the sky. Suddenly he yelled, "Look, there's that bird again!"

This time it was quite high, but the creamy white wing patches were very visible. They watched for about 5 minutes as it again drifted northwest and disappeared. Whether or not this was the same bird, it was definitely the same species.

The next day was a busy one again and little thought was given to the sighting the day before. Little did I know, though, the wheels were turning in the mind of our nature lover, David. I thought he was in his room doing Science. He was! But instead of the books he was supposed to be studying, he was poring through stacks of old National Geographics! This came to light when he came upstairs and calmly showed me the picture of a California Condor in the May 1970 issue. There was the bird we had seen the day before! After reading that there were only 50 left in the world, I was rather excited.

When Lance came in for dinner that day, David showed him the picture. He had to agree. This was the bird we had seen. We needed to report our sighting



to the proper authorities so later that day, I phoned the university and was referred to Joe Schmutz. When I told him we believed we had seen a California Condor, he said, "Oh." Pause. Pause. "That is very" pause, "surprising, isn't it?"

From the lack of conviction in his voice, I presumed he didn't believe me. As I described the bird and related the story, he sounded a bit excited. By the end of the call, he sounded thoroughly convinced. Later, I received a call from Stuart Houston, who asked some questions and said it was a very possible reality.

So here is our story, and, as Joe said, it is truly the sighting of a lifetime.

- Judy Simonson, Box 787, Kerrobert SK, S0L 1R0

[Editors' Note: A possible sighting of a California Condor also was made at Beaverhill Lake, Alberta (se of Edmonton) 15 April 2000, and another was made a week earlier. It will never be possible to know for sure whether or not these sightings were truly of this rare bird. The descriptions by the observers are convincing. Yet, according to Lloyd Kiff, Science Director of the Peregrine Fund, there have been no records of California Condors in Canada in the past 180 years, and the only fully validated sightings ever from Canada were made in British Columbia. The bird's presence on the Canadian prairie in the spring of 2000 must remain a tantalizing possibility.]

**BUZZING BALL BAFFLES  
BOTANIST**

One of the pleasures of routine field work is finding unexpected things – like an abandoned mouse nest that buzzed. I encountered this oddity last summer near Last Mountain Lake, while

searching through thick vegetation for spindly, little Western Red Lily plants (*Lilium philadelphicum* var. *andinum*). The tedium of the work made me pick up the nest; curiosity made me hold it, waiting for the buzzing thing to emerge and show itself. It didn't, so I put the buzzing ball of dried grass back on the ground and resumed the search for lilies.

That was 1 July 1999 and the nest lay undisturbed until 5 October when Bonnie Lawrence and I returned to the plot to do another survey. Because a thick tangle of Northern Reed Grass (*Calamagrostis inexpansa*) covers the area, I didn't see the nest again until I was right on top of it. The remains of the mouse nest was where I'd left it and under it was a bumble bee nest 13 cm across (Figure 1). Only the top was visible. When we lifted the bee nest out of the ground, we found that tiers of cells filled a cavity 8 cm deep.

A few bees had had the courtesy to die in the cells providing us with a



*Figure 1. The bumble bee nest as found in the ground*  
*Anna Leighton*





**Figure 2. Close-up of excavated nest showing the peanut-sized cells**

**Anna Leighton**

sample to send to Phil Curry for identification. According to Phil, this bumble bee, *Bombus fervidus*, is a fairly regular inhabitant of the prairies. It occurs across the southern third of the province in mixed grass prairie and Aspen parkland. Mated females overwinter and in spring or early summer find an abandoned rodent or bird nest to start a colony.<sup>1</sup>

Phil suggests that on July 1 the queen was probably incubating on a nest. Bumble bee nest-building is a complicated process. "After selecting her site, the queen forms a hollow in the center of the nesting material, builds a wax cup in which she lays eggs, and incubates them until they hatch. The queen also forages for nectar and pollen to feed herself and her developing larvae. After about 10 days the larvae spin their cocoons and pupate." <sup>1</sup>

Worker bees are produced first, and take over all foraging and brood rearing activities while the queen remains in the colony laying more eggs. Males and

new queens emerge later in the summer. Colonies may attain a size of 400 bees in one season. Ours, with about 150 cells (Figure 2), was a bit above the normal range of 30 to 100 bees per colony.<sup>1</sup>

Could these bumbles bees be important pollinators of the Western Red Lily? This nest was less than 50 m from a fairly dense population of plants where, on the day we found the nest, we counted 202 lilies in flower and 168 in bud in a rectangle 10 m wide by about 70 m long. The foraging range of *B. fervidus* is about 50 m in length and most foraging trips last about half an hour.<sup>2</sup> And, although the nectar would be hard for bees to reach, lilies are rich in pollen and it may be possible that the bees were using these lilies as a food source. It would be ironic to have stumbled upon an important pollinator in this way, since in our five years of field work to date on the Western Red Lily we have noted only a few instances of pollination and that was by swallowtail butterflies.



## Acknowledgements

I would like to thank Phil Curry for his assistance with all stages of preparation of this article and Bernie Gollop for his helpful comments.

1. Curry, Philip S. 1984. Bumble Bees of Saskatchewan (Hymenoptera: Apidae) A Survey of their Geographic Distribution. Saskatchewan Culture and Recreation, Museum of Natural History, Regina.

2. Heinrich, B. 1979. Bumblebee Economics. Harvard University Press, Cambridge MA.

- Anna Leighton, 328 Saskatchewan Crescent West, Saskatoon, SK S7M 0A4

## BARN OWL AT GRASSLANDS NATIONAL PARK

I saw the Barn Owl on Wednesday, May 17, 2000, just around sunset. My companion and I had driven into

Grasslands National Park from the north gate. We parked our car at the Ecotour Signpost 2 (see the 1999 GNP West Block map). I had walked maybe a hundred feet/yards south along the road as it dipped down into the Frenchman Valley when I noticed the owl flying beside me, and not that far above me. It seemed to have come out of one of the draws to my left (east) and was quite close to me. I thought it must be a Short-eared Owl; I had seen one two days before. However, I noticed it didn't have the wandering, wavering motion of a Short-eared. And then it turned its head to look at me. I noticed the white face with its unusual shape. The owl circled a quarter turn to the right, turned its head to look at me again, made another quarter turn and disappeared into a draw on my right. The whole time I don't think it moved its wings much at all; its flight was very steady - I say flight, it was in fact gliding more than flying.

- John Weier, 58 Ashland Avenue, Winnipeg, MB R3L 1K4



"The larkspur and its close relative, the delphinium, are both named from the shape of their flowers. The larkspur flower looks a bit like the claw of a bird, and the delphinium flowers 'especially before they be perfected' (Gerard), resemble the bottle-like nose of the dolphin, *delphis* being the Greek for 'dolphin'"

(p.115)... "The name 'forget-me-not' comes from the Old French *ne m'oubliez mye*, which in turn was a translation of the German *vergiss mein nicht*. The best known legend about the flower is of a German knight picking a posy of forget-me-nots for his beloved as they strolled together on a riverbank. He slipped and fell in, but before drowning he threw her the flowers, crying, '*Vergiss mein nicht*.' This excruciating story could really only have merit were it to be sung onstage with a suitably distraught and bosomy soprano and some excellent trap-door mechanisms. Botanically it doesn't hold much water." (p.72).

Diana Wells, *100 Flowers and How They Got Their Names*



## ATLAS OF SASKATCHEWAN

KA-IU FUNG, Editor. 1999. University of Saskatchewan, Saskatoon. 350 pp.  
Hard cover \$125.00. ISBN 0-88880-387-7.

Unbelievable! The new Atlas of Saskatchewan contains more information on this province than any other book ever published. Edited by Ka-  
iu Fung, it has in its 340 large pages (34 x 24 cm; 100 more than its 1969 predecessor) over 800 multicoloured maps, 75 texts, many graphs and diagrams in sections titled archaeology, history, physical environment (including geology, soils, vegetation and climate), wildlife, natural resources, population, economy and urban. This note deals briefly with the 30-page wildlife section. Each animal group has a page of text and references for further reading in addition to maps.

Robert Wapple did the four pages on mammals - 81 maps with one species per map. Amphibians and reptiles were done by Andy Didiuk in two pages - 19 single-species maps. Birds were divided into two parts. The first deals with distribution within Saskatchewan, whether for breeding, migration or visiting in winter. In four pages, Alan Smith compiled 112 maps for 294 regularly-occurring species plus an additional 12 maps for two extirpated species and 13 at risk. The second section - new for this edition - shows where birds banded here have spent their first fall and winter. Bernie Gollop compiled a two-page map of the new world showing the province, state and country destinations of 43 species with only a few records each. It is followed by eight single-species maps for birds with more than 200 recoveries each;

these give the percentage of banding reports in each political unit.

Superimposed on this map is the route taken by a Swainson's Hawk fitted with a radio by Stuart Houston and tracked by satellite from the time it left Kindersley on August 26, 1996 until it returned on April 29, 1997. Its location on 24 selected dates to Argentina and back are also shown. During those eight months it travelled at least 21,000 km.

Another new section is on butterflies by Ron Hooper and Gollop. Thirty-three maps show the provincial distribution of 157 butterflies in three pages. Twelve of our more common species are illustrated in colour. As with birds, there is also an index which for butterflies includes flight periods and scientific names.

Under natural history one will find maps and text on Ecoregions (also photos) by G. A. Padbury and D. F. Acton; Endangered Spaces by Peter Jonker and Protected Wildlife Areas by Gollop. However, some protected areas, e.g. national and provincial parks are mapped under Outdoor Recreation in the Economy section where one will also find information on rivers, forests, minerals, natural gas, crop pests and soils.

The text compresses a lot of information on wildlife into small spaces. For instance, eight of Saskatchewan's mammals are bats and once upon a



time, the present Saskatoon area regularly hosted bison, Gray Wolves, Wolverines, River Otters, Elk, Grizzly and Black bears....Northern Leopard Frogs declined dramatically in the mid-1970s but have started to increase in the 1990s...A garter snake may travel 25 km from its wintering den to feed...Saskatchewan's 94,000 lakes (and its rivers) host 58 species of fish...Lake Sturgeon take 20 years to mature.

Saskatchewan's Mixedwood Forest (a band of vegetation crossing the province between Prince Albert and La Ronge) has more breeding species of birds than any other area north of the tropics...Most Blue-winged Teal raised in Saskatchewan go to Central and South America, with a few heading for Quebec and Maine...Our Mallards visit four provinces, 40 states and Mexico on their

first migration...The Painted Ladies (thistle butterflies) found in Saskatchewan occur here only because they make a one-way migration every year from their primary breeding area in Mexico...The caterpillars of our 18 species of small blue butterflies are tended by ants which receive sugary solutions from them and, in return, ward off predators and parasites.

One's first reaction is that the Atlas is expensive - \$125. However, a careful, even a casual, look through it will convince anyone that it is a major bargain. Luckily, it is being distributed to every school in the province.

Reviewed by Bernie Gollop, 7 November 1999.

(This review is reproduced from the Saskatoon Sun)



*Garter Snake*

*Wayne Lynch*



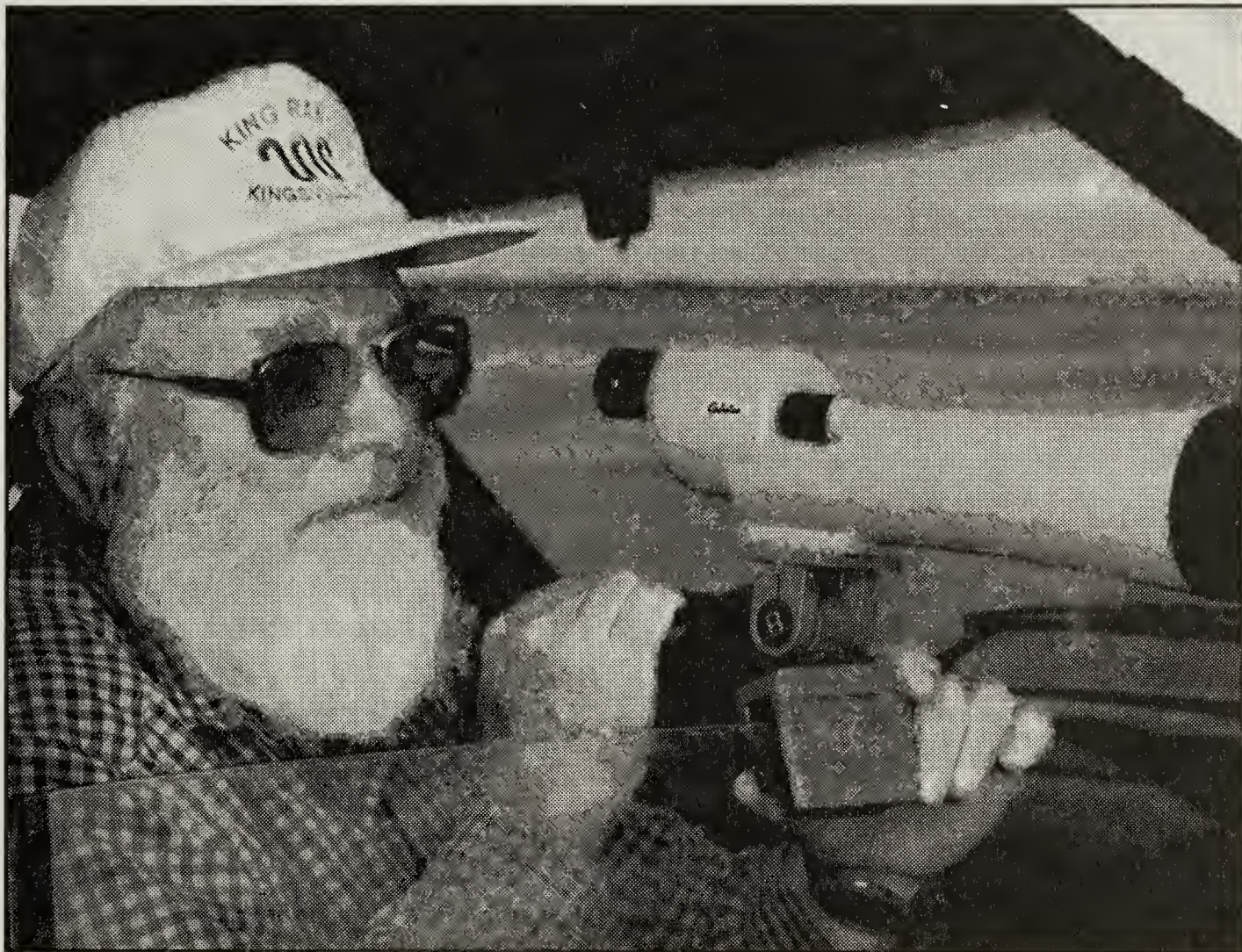
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# IN MEMORIAM

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## J. BERNARD “BERNIE” GOLLOP, 1926-2000

C. STUART HOUSTON, 863 University Drive, Saskatoon, SK S7N 0J8, J. FRANK ROY, 650 Costigan Way, Saskatoon, SK S7J 3R2, and ALEX DZUBIN, 2410 York Ave., Saskatoon, SK S7J 1J5.



*Bernie Gollop, 1994*

*Mike Gollop*

James Bernard Gollop was born in Ottawa on January 5, 1926. When he was a year old, his family moved to Chicago for seven years. His first bird memories, Red-headed Woodpeckers and Blue Jays in the woods behind his house, come from Chicago. When the family returned to Canada, settling in Montreal, Bernie began keeping bird records and joined the Province of Quebec Society for the Protection of

Birds, needing rides from his father or mother to get to field trips. At one of these meetings he met his future wife, Madeleine Furness. His first published article, in *Canadian Field-Naturalist* in 1949, told of a Sora egg in a Red-winged Blackbird nest, and of Madeleine Furness finding an American Bittern nest only 3 m distant. He obtained his B.A. from Loyola University, an M.Sc. in ornithology from Cornell University in





***Bernard and Madeleine Gollop,  
1949***

Ithaca, New York, and a PhD at the University of Saskatchewan.

With his wife, Madeleine, he arrived in Saskatoon in 1949 to take a position as wildlife management officer and officer-in-charge for Canadian Wildlife Service. He was the first CWS employee in Saskatchewan. His staff grew, with the arrival of Alex Dzubin in 1956, then W. J. D. Stephen and Jack Millar in 1959.

To foster close relations between CWS and the University, which have continued to this day, Bernie was given an office on campus in the Field Husbandry building. When the Biology Building was built, Dr. Rawson invited CWS to take up offices on the third floor, and under Bernie's low-key but efficient administration as officer-in-charge, CWS finally constructed a building on Perimeter Drive, opening in 1966.

From 1949 to 1954, Bernie was one of the early researchers to work on the annual North American waterfowl population surveys. He apprenticed under pilot/biologist J. J. Lynch, U. S. Fish

and Wildlife Service, and Bill Hyska, Conservation Officer, Saskatchewan Department of Natural Resources. Strategies were planned out of the Kings Hotel in Regina.

Early studies were conducted across the province and intensive studies were initiated in the Kindersley-Eston area. Here Bernie ground-proofed the aerial observations made by crews counting ducks from airplanes overhead and made the first detailed study of homing and re-nesting in Mallards. He initiated long-term waterfowl studies at Pinkham, west of Kindersley, where he pioneered, in Saskatchewan, the use of dogs to capture ducks for banding. These dogs were trained to find ducks in dense cover and carry them unharmed to the banders. Widgeon, his Chesapeake Bay Retriever, was one of the best in the business. Using dogs and drive traps, one year he captured 340 young Mallards on two 40-acre ponds, the highest concentration ever reported.

In these early years, he had a profound influence on the future careers of two local boys, Richard Fyfe and Glen Fox, who worked as field assistants, and in 1957, Ernie Kuyt came under his tutelage. Also in the Kindersley area, a fortuitous meeting with C.N.R. dispatcher/telegrapher, Ron Lamont (who provided a "free" dog), led to three decades of volunteer cooperation with CWS.

Other work included developing, with Carl Walters, the first computerized model of North American Mallard populations, studies of waterfowl and crane depredation on farmers' crops, and research on waterfowl at Delta, Manitoba, at Last Mountain Lake, and in marshes east of Cumberland House. Between 1975 and 1981, Brian Johns and Bernie tested the use of bird song as an alternative censusing technique for songbirds in the grasslands and in



Prince Albert National Park, and tested the accuracy of Breeding Birds Surveys for birds away from roads.

After retirement in March 1988, Bernie continued annual wildlife inventories in several regions of the province. Working with his son, Michael, between 1989 and 1994, they made over 100 trips to the Luck Lake area gathering data for *Birds of the Elbow*, counting birds for up to 16 hours each day. These meticulous studies resulted in Luck Lake bird numbers occupying a prominent place in the United States Biological Survey Report entitled *Biogeographical Profiles of Shorebird Migration in Midcontinental North America* published this year. Also during this period, their counts of cranes and geese at Galloway and Miry Bays, starting in 1988, revealed that there were more White-fronted Geese at this one location than reported for the whole continent by the U.S. and Canadian wildlife agencies. Subsequently, Bernie and Michael piloted counts that led to a re-evaluation of the White-front population and new methods of censusing.

Bernie was an unusually competent editor and critic. He edited *Blue Jay* for four years, from 1973 to 1976, and throughout his lifetime helped many people prepare articles for publication. As regional editor for the Prairie Provinces Region, Bernie compiled 20 quarterly reports for *American Birds* from 1979 to 1989. His thoroughness and insistence on getting things right made him exceptional at this task, and at checklists such as *Saskatoon Area Birds - A Seasonal Checklist* compiled with Mary Gilliland. He also published a checklist of the Northwest Territories birds in 1978, and contributed to the 6<sup>th</sup> Edition of the *American Ornithologists' Union Check-list of North American Birds* published in 1983.

Thanks to Bernie, the 1969 version of the Atlas of Saskatchewan included range maps for Saskatchewan's birds. In the 1999 edition of the Atlas, he contributed maps of bird migration as well as, with Ron Hooper, distribution maps for all species of butterflies in Saskatchewan. Other local publications include *Eskimo Curlew: A Vanishing Species?* co-authored with T. W. Barry and E. H. Iversen, published in 1986 by the Saskatchewan Natural History Society, and the Saskatoon Nature Society publication (1992), *A Guide to Nature Viewing Sites in and around Saskatoon* co-edited with Peter Jonker. He also contributed the section on bird-finding areas around Saskatoon to the 1984 and 2000 editions of J.C. Finley's "A Bird Finding Guide to Canada."

Bernie was an indefatigable observer, who kept extremely detailed and accurate records; the number of his personal records came close to eclipsing those of all of the rest of us in Saskatoon. Before work, he would visit areas around "the city", such as the river bank, and make notes on birds, mammals, and other wildlife. He also took part in several Christmas Bird Counts each year, and for many years organized and compiled the spring and fall bird counts that covered the Saskatoon area.

He encouraged amateurs to record wildlife observations, especially in their own backyards, and in the 1960s he began a massive effort to record information from local bird watchers on the occurrence of bird species in the Saskatoon area. He distributed reporting cards of his own design and encouraged all local naturalists to record the number of each species observed each day. These he summarized in *Saskatoon Bird Review*, 1966 - 1971, and in some issues of its successor, *Saskatoon Field Notes*, through 1988, working with Stan



Shadick, Wayne Renaud, Wayne Harris, Ed Driver, Ron Bobowski, Chris Escott, Nancy Young, and especially Pat O'Neil. These early compilations, as well as other local records, form the basis of the Saskatoon checklist now in its fifth edition (1993) and the upcoming book, *The Birds of Saskatoon*.

Bernie's butterfly records date from the early 1970s, and in retirement, he turned more and more towards this area of interest. In 1998 alone, he made 149 butterfly surveys in the Saskatoon area between 27 March and 27 October, in addition to studies elsewhere in the province with his son, Michael. His regular butterfly hikes in and around Saskatoon in the last few years have created an active community of butterfly enthusiasts and he encouraged butterflyers throughout the province. As part of this effort he initiated, with Anna Leighton, an annual series of reports on butterflies. The first one, *Saskatchewan Butterflies 1998*, was published in June 1999.

Without ever seeming to talk down to anyone, he gave help freely to the hundreds of novices who approached him for advice and encouragement, and his unabashed interest in nature inspired those around him.

Bernie was a prodigious worker who preferred to let others take the limelight for much of what he did. Without question, he had more effect on, and contributed more to, the study of natural history than any other person in the Saskatoon area.

But none of this begins to touch on Bernie's human qualities. Although well-known for his dry sarcasm and his persona as a crusty curmudgeon, Bernie was kind, gentle, and infinitely patient. He was clever, witty, reliable, – a decent, principled man. He leaves a legacy of significant and original contributions, enriching personal contacts and a model of personal endeavour that will be hard to emulate. His skills, wisdom and humour will be missed.

Bernie, friend of nature and mankind, was stricken with a massive intra cerebral haemorrhage on May 16. He died on May 26.

We thank Michael Gollop, Mary Gilliland, and Pat Yuedall, for invaluable assistance in preparing this memorial.



"The ducks rafted in coveys on the river and drowsed with their bills nestled in their backs. The coots there swung around slowly in the water on one green foliate foot. The herons humped morosely in the trees, plumes elegant and sulky between shoulders. The chick rails would be under pinions now."

Donald Culross Peattie, *A Prairie Grove*



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## MYSTERY PHOTO

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This photo, taken on 9 July 1998 near Hatchet Lake in northeastern Saskatchewan, shows tiny parasols, about 1 cm across and standing about 10 - 15 cm high. They appear in this photo to be growing out of Cloudberry leaves, but in fact arise from moose droppings. Whose parasols are they? Send your responses to the editors of *Blue Jay*. The ANSWER will appear in the next issue.



## Answer for MARCH 2000 MYSTERY PHOTO

The fleshy appendages, orange in real life, are the telial horns of Cedar Apple Rust, a fungus in the genus *Gymnosporangium*. They grow in wet weather in spring, from woody galls on juniper branches and release spores that produce an alternate life stage on Saskatoon-berry and related plants. Have you ever found yellow-orange Saskatoon-berry plants with unusual projections, looking like short pins, sticking out of the leaves or berries? This is the other life stage of the rust, and it sheds spores too, that infect juniper and start the life cycle all over again.

The general name for this group of pathogens is Cedar Apple Rust. The species that infect Saskatoons are called Saskatoon-Juniper Rust. Look for the orange coloured telial horns in a wet spring - 1999 was excellent - wherever creeping juniper (*Juniperus horizontalis*) grows. You will find the woody galls on the plants year-round.

Correct responses were received from Norman Mountain from Merritt, BC and Jim Wolford in Wolfville, N.S. Norman was familiar with Cedar Apple Rust from his years working as a nurseryman at Lloydminster. The species he saw there, *Gymnosporangium macrocarpus* and *G. globosum* used Saskatoons and Hawthorn as alternate hosts, but if separated from these plants by 100 yards or more, would not infect them. According to Jim, there are five species of *Gymnosporangium* that occur on species of Juniper in Nova Scotia where their alternate hosts are shadbush (what the Nova Scotians call their close relatives of Saskatoon-berry) and other members of the same family, eg. apple, chokecherry and Mountain Ash.

The editors would like to thank Robin Morrall, Jill Thomson and Gary Jones for generously providing information on this mystery photo. Excellent photographs of the life stages on Saskatoon-berries can be found in *Growing Saskatoons - A Manual for Orchardists* by Richard St-Pierre.





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